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Railway Age

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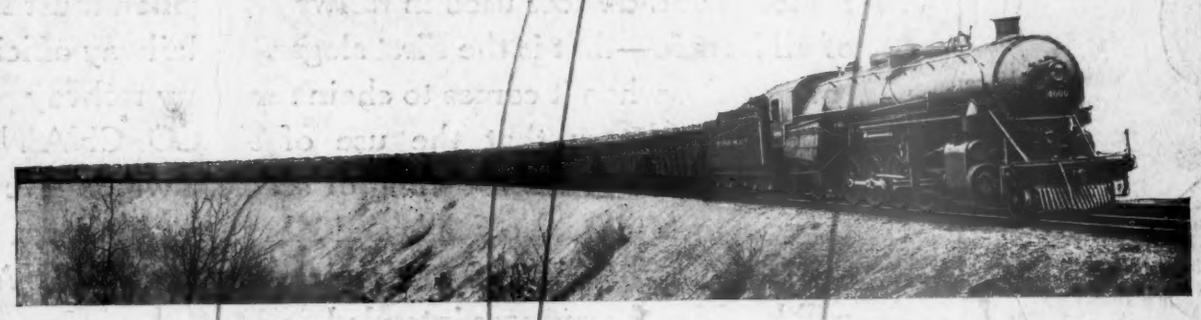

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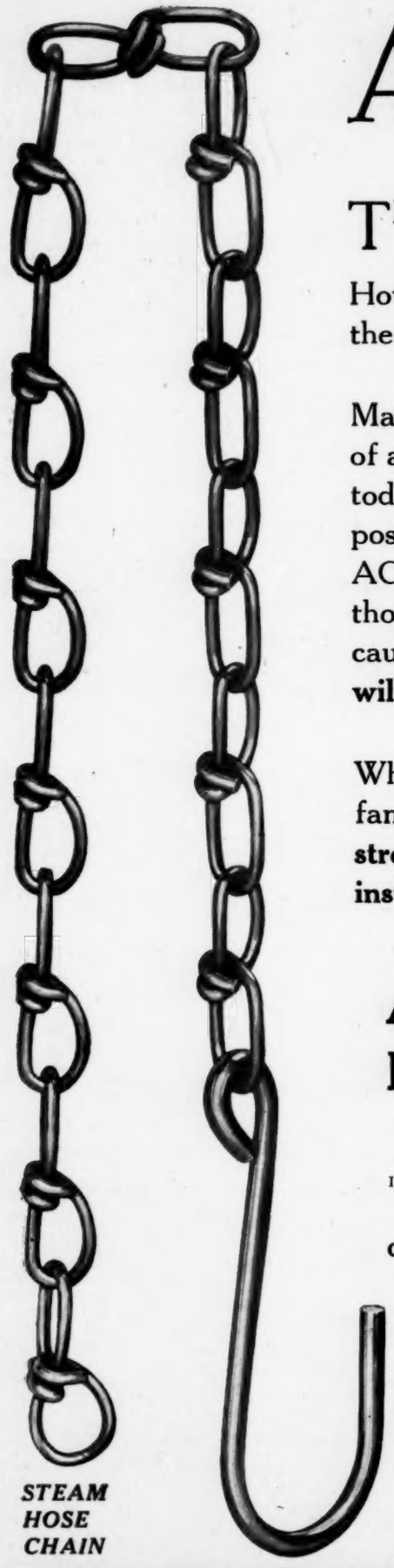

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EDITORIAL

Railway Age

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Selecting Men for Promotion

The foremen and subordinate officers come into intimate contact with the workers—indeed, they often form the only point of contact between the employees and the management. It is essential, therefore, that they be thoroughly versed in the policies of the organization and at the same time be capable of intelligently directing the energies of the men under them and of seeing that the policies of the company are understood and made effective. Ordinarily, little thought is given on the railroads to the promotion of men from the ranks until the emergency arises and then the decision is made more or less on the impressions of the moment—in other words, is largely a matter of snap judgment. Added to this, the new foreman is often given only the crudest sort of coaching, whereas he should receive a thorough and complete course of training. Too often he is practically thrown at the job and is largely left to work out his own salvation. No wonder that misunderstandings arise, that efficiency falls off or remains low, and that the morale suffers. Is it not high time that this careless and haphazard way of handling one of the most critical matters in the operation of a railroad was more generally recognized and that definite steps were taken to improve conditions? This is only another argument for the establishment of a personnel department such as recommended by J. C. Clark in the *Railway Age* of June 18, 1920.

Be Progressive and Avoid Regrets

Evidence is steadily accumulating to show that the capacity and efficiency of locomotives can be increased greatly by using feedwater heaters. Considering the results as a whole, an average fuel saving of 15 per cent seems no more than can be reasonably expected. If applied to existing locomotives the most important advantage derived from the feedwater heater is the saving in fuel, but if it is included in the design of a new engine this device should result in a general improvement that would increase both efficiency and capacity. The saving that is assured in either case is so great as to make the higher first cost and the additional maintenance expense negligible by comparison. The handwriting on the wall is plain; the advantages are evident and feedwater heating is coming, but the railroad officers find it hard to take the first step and only here and there are installations being made. If data were available to show the percentage of new engines equipped with feedwater heaters it would probably be surprisingly small, yet it would no doubt be economical to arrange for their application on practically all new power. Putting on a device after an engine is built is unsatisfactory at best. The work is expensive and in nearly every case the engine is not well adapted for the improvement. Within a few years many roads will probably figure how they can put feedwater heaters on the engines they are building now and wonder why they did not include them in the original equipment. This has been the history of other important devices; there are only a few who are bold enough to do the pioneer work. Surely if there ever was a time that justified boldness in adopting devices that save fuel and increase the capacity of locomotives, that time is now.

Know Your Machines

When a man has acquired an automobile the most natural instinct is to take pride in his machine and find out as soon as possible just what it will do. He wants to know how fast it will go, how far on a gallon of gasolene and how much of a hill it will climb. The same relative feelings ought to be entertained by railway shop men in regard to shop machinery and equipment for the efficient operation of which they are responsible. Unfortunately many shop men neither appreciate their machines nor have accurate knowledge of what can be accomplished with them. This is illustrated by an incident that happened only recently. One of the operations incident to machining an eccentric rod strap is boring the inside diameters and a certain boring mill manufacturer stated that this work could be done on his machine in seven minutes and twenty-two seconds, including the time of set-up. The shop executive to whom he was speaking protested that the operation was taking much longer in his shop; that he did not think it could be done in anywhere near the time claimed. He was astonished when told that the record was made by a man operating a machine in the shop of which he was superintendent. Skeptical and unconvinced, it required an actual demonstration in which the record was duplicated to prove that he was wrong and the machine tool builder was right. It is time that guesswork methods of determining machine tool output were succeeded by methods involving accurate time and cost knowledge. Shop foremen and executives must *know* what their machines are doing. It will then be comparatively easy to eliminate costly practices, decide on what machine any given job can best be performed and secure the maximum shop output possible with present equipment.

How to Quickly Unload Freight Cars

The rate charged for demurrage on freight cars is one of the most important elements of efficiency that the energetic freight agent needs to keep in mind, and the whole subject is beset with so many difficulties that the problem of effectually guarding against relaxation, neglect and waste is always with us. If we can stop the countrywide loose practices in diversion of cars it will help in the present emergency, but a stiff demurrage charge will still be necessary. The present easy practices are the result of a long course of sinful carelessness, and there need be no surprise that costly penance is needed to cure them. The letter from California on this subject, which appears on a following page, sets forth radical views; but it is for that very reason that it is printed. Everybody knows that high rates, stiff rules and the abolition of the average agreement are all necessary whenever this disease is desperate—and it is desperate now. Some authority, somewhere, will have to be brave enough to ignore minor injustices. As in the rates charged for the use of cars as between one railroad and another, the formulation and adoption of a system which will always be strictly equitable is absolutely out of the question. The weakness of the past policy of the Interstate Commerce Commission in this matter is due to the Commission's hopeful but impossible theory

that exact justice can be and ought to be done. As in conducting the war against the Hun, a bold policy is the only one that will bring the desired results.

Get What You Pay For

Shop lighting systems should be maintained as carefully as other shop facilities. When a shop tool is improperly maintained, it usually gives evidence of its condition. The eye can accommodate itself to a wide variation in light intensity from bright noon sun to starlight, and for that reason it is easy to let a lighting system run down. It is possible to do shop work by torchlight, but torchlight does not promote efficiency. When a shop lighting system is not properly maintained, its efficiency may fall off as much as 50 per cent in a few weeks. A good shop lighting system which has been allowed to run down can be restored by following a few simple rules. Make some reliable employee responsible for the maintenance of the lighting system. Give him sufficient authority to enable him to get the work done and instruct him to wipe reflectors and lamps once a week; to wash them with soap and water every third or fourth cleaning period, to fill empty sockets, to replace burned-out and blackened lamps, and to make sure that the voltage rating of the lamp is no higher than the voltage at the socket when the system is in use, as a small reduction in voltage will cause a comparatively large reduction in candle power. Following these rules will boost shop efficiency and will give you what you pay for in either purchased or generated electric power.

Where Angels Fear to Tread

Many men who have acquired wealth so fast that it amazed them have been emboldened to try their hand at the more seasoned modes of money making, only to lose. Is Henry Ford following in the footsteps of the mining kings of Nevada and Montana who lost money in Wall street, or is his purchase of the Detroit, Toledo & Ironton a shrewd move by a clever man that augurs well for our railroads? Assuming that he has exercised the same good judgment that has made him an ultra-successful manufacturer, is it not reassuring to see him stepping into the railroad game at this critical moment? True, Mr. Ford places a bank account at the disposal of the D. T. & I. that would stagger a larger road in these days, but nevertheless it is safe to say that he thinks well of the railroad outlook to have made this purchase. Mr. Ford will probably learn a good deal about railroading that he never knew before the D. T. & I. declares a dividend and he may discover that the usual shipper's viewpoint on the subject of rates is based on a rather shallow knowledge of the facts. But it would be well if more business men, more manufacturers and shippers would participate actively in the management of the railroads—it would tend to enlarge the community of interest. Mr. Ford will have this great advantage, he will be the owner and manager in one, an uncommon situation since the days of Harriman and Hill.

The Missing Commissioner

Although the transportation act passed in February authorized an increase in the membership of the Interstate Commerce Commission from 9 to 11, the commission is still operating with one vacancy, because James Duncan, who with Henry Jones Ford was given a recess appointment by the President after the Senate had failed to confirm the original appointments, has not yet either taken the office or given an indication as to his intentions in the matter. Mr. Duncan was re-elected first vice-president of the American Federation of Labor after his appointment to the commission was announced, and while Mr. Ford and Mr. Potter appeared and took the oath of office and have since been sitting as members of the commission in the rate case and other proceedings it is understood that Mr. Duncan has not even communicated with the commission. Being president of the Granite Cutters' Union, it is possible that Mr. Duncan believes in the idea that the laborer is worthy of his hire so strongly that he is reluctant to accept an office the salary of which is entirely dependent upon uncertain Congressional action at some later date. It has also been suggested that it would be unpleasant for him to have to participate in the proceedings incident to increasing freight and passenger rates to pay for the increases in wages which railroad labor has received during the past two years and is still to receive for this year. It has been understood that labor has been very anxious to have representation on the Interstate Commerce Commission, but in this instance the opportunity seems to lack appeal.

Stamp Out the Dishonest Practices

One of the prime essentials for lasting success in any business undertaking is the reputation for square dealing. Sharp practice or partiality is fatal, and it matters not whether the act is that of the subordinate or the principal. In either event the head of the firm is assumed to be conversant with the methods pursued and to be in accord with them. In view of this it is highly essential that the railway managements make every effort to stamp out dishonest practices. Stories of graft in car distribution or exchange of money for preferential movement of cars through terminals are no more common today than they have been at other periods of car shortage and congestion. It is also a fact that such stories usually concern the employee or subordinate officer and that they relate to a condition which arises primarily from the efforts of some shippers to obtain more than their share of the available service. Nevertheless, the public will hold the managements very largely to account for such conditions, taking the position that these objectionable practices can obtain for but two reasons: Either the managements countenance them or the managements are too cumbersome or ineffective to apprehend and suppress them. At no time in railway history has it been so important that the railroads maintain a policy of absolute integrity and impartiality in their dealings with the public. They should leave no stone unturned in their efforts to weed out the grafters.

The Engineer in Real Railroading

The letter to the editor by "Civil Engineer," which appears in another column, recalls an old problem with some new suggestions for its solution. The plaint of the engineer in railroad service has been heard frequently and there can be no question as to the justice of the grievances he submits. "Few of us are satisfied merely with nominal increases in pay," says "Civil Engineer," "we want to see the ladder before us that we can climb." It is not as the non-engineer in railway employ may feel—that the engineer wants special favor, a personally conducted tour through the various departments to some specially prepared place of unusual dignity, but a greater measure of contact with real railroading. Trained for technical work, the engineer is assigned largely to special duties that isolate him from the actual business of transportation. What he learns of it comes through the eyes and ears

of the man on the sidelines rather than through the hard bumps that come to one who plays a real part. Engineers want a chance to get into the game and the railroads will not be the losers for making provision for such a chance. Some railroads now provide a broad training for the technical men, but most of them do not, and numerous instances may be cited where men in engineering positions who recognized the greater opportunity of the operating department have sacrificed places in their own department, obtained only after years of painstaking effort, for minor positions in the operating department that afforded them the necessary training. Under the plan proposed by "Civil Engineer," it would not be necessary for men of acknowledged ability to make such sacrifices.

Tonnage Signals Save Equipment

Tonnage trains moving at comparatively low rates of speed are frequently started out of terminals relatively close together at times when they will cause the least interference with other traffic. On many lines these trains have to negotiate fairly heavy and long grades and if required to stop on such grades in obedience to a signal indication or from other cause they may experience trouble in starting again. It is sometimes necessary for them to back up for a considerable distance to make a new start, and they may pull out drawbars or otherwise damage equipment. As a consequence, in addition to the damage and delay to the one train, following trains are blocked and the entire schedule for a division may be upset. The use of a tonnage or grade signal in connection with automatic signals on grades will eliminate many of these delays and much of the damage, as it will permit these heavy trains to proceed to the next signal past an automatic signal indicating "stop," at a speed not to exceed 10 miles an hour. One road uses for this purpose a 15-in. metal disc attached to the signal pole with a reflected light for a night indication. Another method employed by some roads is to place a motor-driven arm on a signal pole, so arranged that when the automatic arm is in the "stop" position the tonnage signal clears the 45-deg. or caution position, conferring the same rights as the disc described above. With the present shortage of equipment and the acute necessity for keeping it moving, the use of these signals (which can be installed where needed at a very moderate expense) by roads handling heavy traffic over grades will result in material savings and will speed up operation.

Supervising Officers Must Have a Chance

Maintenance of way officers must be given a better chance to develop as field executives if the roads are to get the most out of their present forces, an object of increasing importance as wage rates increase. In almost all positions the maintenance officer is now overburdened with paper work and more or less unimportant details. Under the system in vogue today the supervisor and even the division engineer are being developed into first class office men, more on the lines of accountants than as real executives. In order to fill his position to the best of his ability such an officer must have the time to outline his work properly and then to get out on the line into actual contact with the workers. So long as he is restricted to the making up of innumerable statements of little or no value to him in arriving at the actual cost of doing the work with which he is directly concerned, his value as a supervising officer is comparatively small. He must be relieved of all such work which will tend to hinder the proper administration of his duties. In nearly every supervisor's or division engineer's office better work can be performed at a less cost and with fewer men by weeding out the weak employees, encouraging the more intelligent by better pay and by the same means attracting a higher class of new men. Two $175 a month office men are worth more in work performed than three $125 men, a fact recognized in almost every big business. This is a subject well worth studying and a convincing demonstration of its need is to spend a half-day sitting quietly on the side-lines of a division engineer's office on one of his busy days. The waste of his time due to the ignorance of clerks or to their lack of interest is appalling. The result of introducing or developing higher grade office men is self-evident. The officer is then given every chance to develop the best there is in him. Work will be more satisfactorily handled, for the supervisor or division engineer can plan it more thoroughly as a result of the increased time available. The work of the gangs will improve, for his supervision will be closer and a better spirit will be developed throughout the organization as a result of his personal contact and close interest.

Interesting the Employees

If the railways are to attain the goals set for them by their Executives committee they must enlist the active interest and co-operation of every employee. An average load of 30 tons per car and an average movement of 30 miles per car per day cannot be secured by the officers alone, no matter how efficient and energetic they may be. They can only be accomplished by getting every man, down to those in the humblest positions, to contribute his best efforts to the desired end. This can only be done by carrying to these men the aim of the roads and the reasons therefor in terms which they can understand. Typical of such measures is the plan which is now being put into effect in the Chicago region of the Erie. Large posters have been prepared showing in curves the ton mileage handled by the roads at present and the increases which would have resulted if the maximum loading and car movement previously attained was now being secured. These charts have been the subject of conferences between the members of the general manager's staff and the yardmasters and foremen at each of the terminals and larger stations after which these local officers have in turn presented this information to those under their supervision. The posters are also placed conspicuously in every office and on every bulletin board. In this way every engineman, every trainman, every switch tender is informed of the drive and is asked to do his share toward bringing the transportation service of the country up to the desired point. When these men are made to realize that by leaving a car standing a day more than necessary they are withholding it from moving grain or coal which may be sorely needed next winter, a long step should have been taken toward reaching the desired goal. The transportation needs of the country so far exceed the present output of the railways that no officer can afford to overlook any means of bringing this output up to the demands.

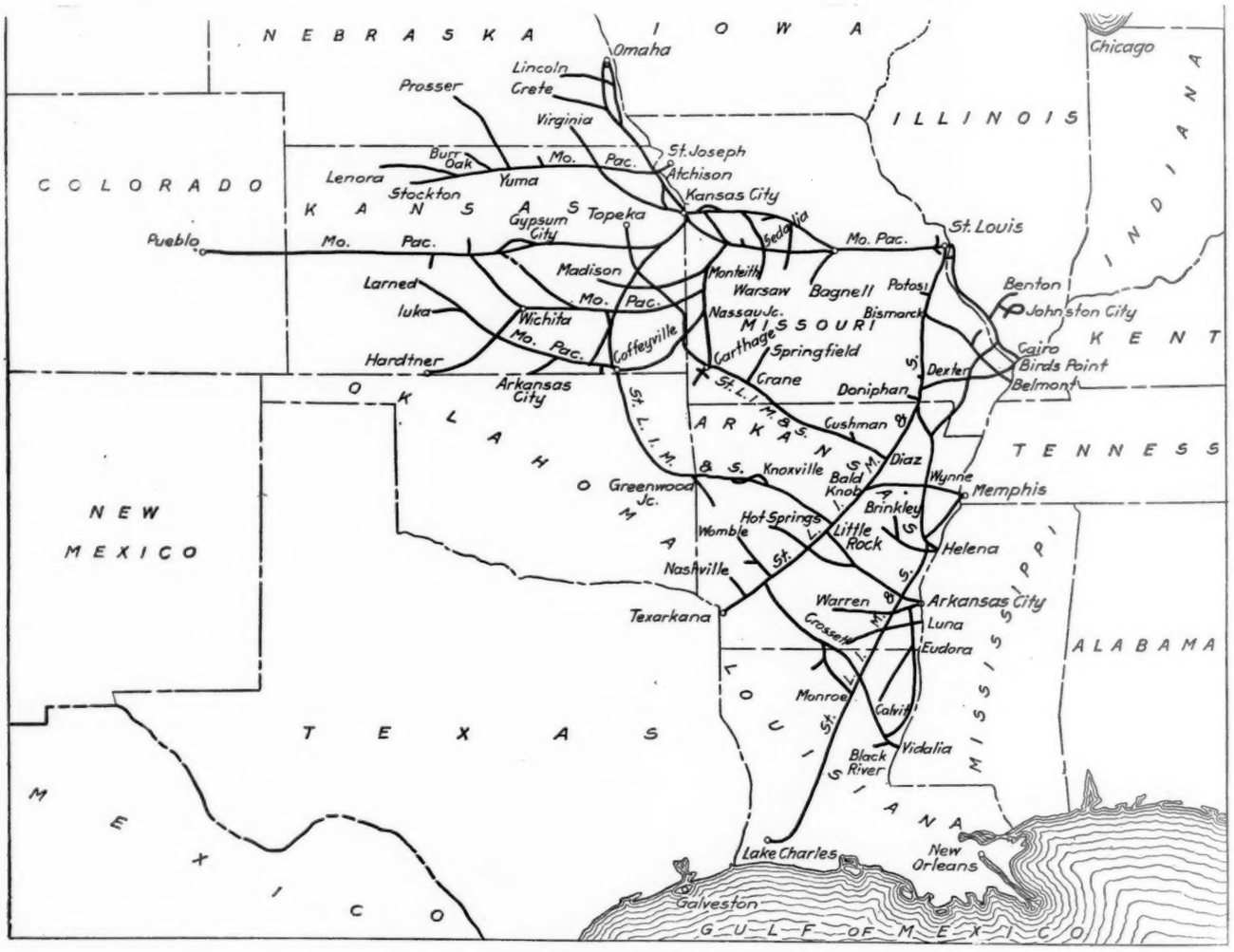
The Loan Fund

The Interstate Commerce Commission has begun to announce its findings as to requests for loans from the revolving fund as provided in section 210 of the Transportation Act. Certification to the Secretary of the Treasury of the commission's approval of loans to seven carriers for a total of $16,593,275 was reported in the *Railway Age* of July 16, page 100, and similar announcements will appear from time to time in the near future. One of the most interesting features is the bearing it is likely to have on the equipment market. The

commission has decided to use $75,000,000 of the fund in loans to cover the purchase of freight cars and $50,000,000 for freight and switching locomotives. The Association of Railway Executives at the request of the commission has recommended loans totaling $52,260,357, which is expected to cover the purchase of 45,021 cars valued at $143,569,730 and of loans totaling $26,868,629, which is expected to cover the purchase of 599 freight and 239 switching locomotives having a total value of $53,737,358. The *Railway Age* has already brought out in its article entitled "The Equipment Purchases Provided by Loan Fund" (issue of July 9, page 57) that a large portion of the orders covered by the loans recommended have already been placed—namely, something like 614 of the locomotives and 21,556 of the cars. The railways which have not yet ordered the equipment for which the loans have been recommended to the commission, are now coming into the market and are renewing inquiries or placing orders from week to week. There seems to be a tendency on the part of the railroads to confine their purchases to only those for which loans from placed by railroads, or the orders to be expected from private car lines and industrials, as well as the great amount of repair work that is in sight for the builders' shops, should also not be forgotten.

Missouri Pacific

NOTWITHSTANDING an increase in the rate per ton per mile that more than offset a decrease in the amount of traffic carried, net income on the Missouri Pacific was less by $7,870,000 in 1919 than in 1918. This comparison is made on the basis of the combined income accounts of the Railroad Administration which actually operated the property, receiving the revenue from freight and passenger and paying expenses and taxes, and the corporation which received from the government a rental for its road and paid to its bond holders interest on their securities. The corporation, receiving a rental of $14,207,000, had a surplus after the payment of interest charges of $4,241,000. This was $2,390,000 more than the 1918 surplus, due largely to an increase of $736,000 received in miscellaneous income and a decrease of $2,036,000 in miscellaneous charges against income, offset in part by $328,000 additional interest on unfunded debt in 1919. This decrease in miscellaneous income charges was caused by the fact that in 1918 the corporation charged itself with $2,473,000 as a net debit of revenues, operating expenses and taxes applicable to the period prior to January 1, 1918, and which amount was paid



The Missouri Pacific

by the Railroad Administration. On January, 1, 1919, the greatest part of these lap-over items had been cleaned up.

The results of operation of the road by the government showed a net loss to the government of $10,223,000 in 1919 as against a net income of a few thousand dollars ($37,000) in 1918. The average rate per ton per mile received in 1919 was 10.36 as against an average rate received in 1918 of 8.41—an increase of 23.19 per cent. This explains the fact that while the total tonnage of freight carried in 1919 was but 27,199,000 tons, or 3,679,000 tons (11.92 per cent) less than in 1918, and the average haul of freight was 236 miles in 1919 as against 244 miles in 1918, freight revenue in 1919 amounted to $66,560,000, or an increase of $3,073,000 (4.84 per cent). Passenger revenue also increased, the total in 1919 being $20,689,000, or $1,154,000 greater than in 1918. The rate per passenger per mile was 2.71 cents in 1919 as against 2.55 cents in the previous year. The number of passengers carried was somewhat greater, but the average passenger journey was about 2½ miles shorter, so that the amount of passenger business handled measured in passengers carried one mile was slightly less in 1919 than in 1918.

It was largely in maintenance that the heavy increase in expenses occurred. Maintenance of way and structures cost $18,940,000 in 1919, an increase of 29.44 per cent. Maintenance of equipment cost $20,781,000, an increase of 12 per cent. The two items of very largely increased expenditure on maintenance of way were ties and track laying and surfacing. Ties in 1919 cost $3,032,000 as against $1,803,000 in 1918. Rail renewal was also greater but was not very much even in 1919, the cost for rail being $465,000 in 1919, compared with $102,000 in the previous year.

Transportation expenses were kept well in hand. In 1919 transportation expenses amounted to $39,690,000—an increase over the previous year of $3,168,000 or 8.67 per cent. Besides the increases in wage scales in 1919, the Missouri Pacific had a different character of traffic. The tonnage of coal fell off very greatly, the total in 1919 being 5,229,000 tons, or 2,038,000 tons (28.05 per cent) less than in 1918. Grain tonnage also fell off sharply, amounting to $2,005,000 in 1919—a decrease of 22.97 per cent. The tonnage of products of animals and of ores also fell off. Naturally the average car load dropped off. In 1919 the average load per loaded car was 21.40 tons. In 1918 it was 23.78 tons. The train load likewise was less; the average in 1919 was 500 tons and in 1918 536 tons.

The Missouri Pacific is in highly competitive territory. During a considerable part of 1918 the pressure of all classes of traffic was so great that it was often apportioned among roads on the basis of ability to handle it expeditiously. In 1919, however, with the falling off in business, all roads suffered. They are not, however, returned to a competitive basis. It is, of course, impossible to say whether the Missouri Pacific's showing would have been better or have been worse had competitive conditions prevailed. It is obvious, however, that the road needs an increase in freight rates. Had it received 25 per cent higher freight rates in 1919 than it did, and had the company been operating the road on its own account, there would have been a surplus after the payment of interest charges of approximately $10,000,000 instead of loss of approximately $6,000,000 as shown by the combined federal and corporate income accounts.

The following table shows the principal figures for operation by the government in 1919 and 1918:

	1919	1918
Average mileage operated	7,205	7,221
Freight revenue	$66,559,805	$63,486,625
Passenger revenue	20,689,218	19,535,391
Total operating revenues	93,577,081	89,612,397
Maintenance of way and structures	18,940,384	14,632,086
Maintenance of equipment	20,781,384	18,577,824
Traffic expenses	1,015,199	1,071,352
Transportation expenses	39,689,848	36,522,014
General expenses	2,536,626	2,136,230
Total operating expenses	83,357,624	73,231,738
Taxes	3,700,523	3,144,291
Net operating income	6,488,017	13,218,384

Letters to the Editor

Car Repairers and Switchmen

To the Editor:

The accuracy of the statement in your editorial on the first page of the July 23d issue, that car repairers formerly received much less than switchmen depends on whether "formerly" refers to a time when switchmen and car repairers as bodies were on an equal footing as regards power to enforce their demands, good and bad, or whether, as is probably the case, the time meant was long after the switchmen organized and just before the shopmen formed their unions, which would make your comparison unfair.

Not so very much dust need be swept up to recollect that once upon a time a switchman got $1.80 a day for 11 hours' work and a car repairer almost that for 10 hours' work. Was not that the case in the 80's and early 90's? Let it be recorded correctly how we arrived!

Observer.

Technical Engineers Not Included in Wage Award

Chicago.

To the Editor:

On page 138 of your issue of July 23 a statement appears in the table of "advances in wages that the award of the U. S. Railroad Labor Board gives to all the various classes of employees," intimating that "Assistant Engineers and Draftsmen" will be granted an increase of 13 cents per hour. I conferred with Judge Barton, chairman of the Board, upon that particular phase of the award and he authorized me to say that "it is the opinion of the chairman of the board that assistant engineers and draftsmen are not included in the award, except where such employees are performing clerical duties." Obviously such cases are very rare. Furthermore, in reply to a telegram from a technical engineer the chairman of the board wired as follows: "Civil engineers as such had no submission presented for them and hence no question as to them decided." It was not the intention of the Board to include professional engineers in the award because they had not been properly before the Board hearing.

E. L. Brandt.

Assistant Secretary in Charge of Railroad Department, American Association of Engineers.

College Men and Other Educational Questions

New York.

To the Editor:

I have read Prof. Dixon's letter on "College Men in Railroad Work" in your issue of July 2. College men prefer college associates; this is impossible, at least among the rank and file of railroad employees, regardless of the fact that the average railroad clerk and trainman is paid compensation in excess of that which the average college graduate receives. Our colleges send forth young men with degrees in theology, law, medicine, etc. Few in the first five years can earn from their profession the compensation paid by railroads to uneducated clerks and trainmen.

If our railroads are to be successfully operated in the future colleges should be established for the purpose of sending forth young men with degrees in traffic, transportation, ac-

countancy, and maintenance both of motive power and road. If this cannot be done, large roads should establish educational departments with correspondence courses in the various branches of the service, available to applicants for employment, free and compulsory to employees. No employee should be permanently promoted except on the merits of his class standing, regardless of age in the service.

The Adamson act, government operation of railroads, and subsequent plums extended to railroad employees have made a large number of them discourteous and disloyal. The union card and age limit should be supplanted by a system similar to civil service.

JAZZ.

The Way Bill Question

BALTIMORE, Md.

TO THE EDITOR:

I have read the editorial in your issue of July 16 entitled "A Great Leak." If the "perfect way bill is a work of art" then it must have that necessary element of all art—time. With shipping tickets bunched into the small space of time from loading to despatching there is created a rush condition that is destructive of all artistic work.

The remedy lies in the management of the details of the process of way billing. There is no valid reason for not billing consignments as they are loaded, by the shipper in case of lots from private sidings, and by freight house men in case of package freight. A combination of receipt, freight expense bill, and way bill, together with as many copies as may be necessary for all desired uses, is practicable. Then install a proper audit office having sufficient time to assure the correctness of every charge, not only at large but at all small stations.

F. LINCOLN HUTCHINS.

The Relation of the Trans-Siberian Railway to the Kolchak Downfall

SIBERIA.

TO THE EDITOR:

I note in the *Railway Age* of April 2, in the report of the dinner of the Railway Business Association, that among the speakers was G. W. Simmons, who, as an American Red Cross official, visited Siberia, for a brief period. In the course of his remarks, he is reported to have given as the primary cause of the fall of the Kolchak government, the failure of the Trans-Siberian railway to function, and furthermore, that even the Americans were unable to keep the railway in operation. There were a number of reasons why the Kolchak government fell, the basic one being because of its unpractical character.

But what attention should be called to and what Mr. Simmons, either through ignorance or otherwise failed to state, is this: The Siberian railway for its entire length, as coming under the Kolchak government, was under the autocratic control of Kolchak's Military, and the operation of it was never in the hands of Mr. Stevens or of the American railway contingent. No commercial traffic was allowed by the Military, and practically no attention whatever was paid to the orders or instructions of the Inter-Allied inspectors. The minister of communications of the Kolchak government, presumably with the approval of Kolchak and his cabinet, nullified nearly everything the allied inspectors tried to do to put the operation of the railways on a proper basis. In fact, the government apparently took every means in its power to nullify the Inter-Allied railway agreement, to which it was a party. And so, admitting, for the sake of argument (what is not true), Mr. Simmons' statement that the failure of the railway was the primary cause of the downfall of the government, then the cause of such downfall was the government itself.

Neither was it true that the railway "broke down entirely." Its services were not what they should have been nor what they could have been easily made by the honest co-operation of the government with the American inspectors.

It is regrettable that Mr. Simmons, with the opportunity he had for observation, should make public such misleading statements.

AMERICAN.

A Larger Field for the Engineer and Ways to Develop It

CHICAGO.

TO THE EDITOR:

It is apparent to anyone who studies railroad organization and departmental functioning, that the relations existing between the operating and the engineering departments on many railroads have not been and are not what they could or should be for the best interests of all concerned. Instead of making the engineer's office practically that of "superintendent of property," the functions have been limited to those of survey, instrument work, mapping and designing.

This condition has worked against the interests of all concerned. The operating officers have been deprived of much intelligent and technical help not only in matters pertaining to property but even in transportation problems, the railroads have lost a considerable degree of efficiency and unquestionably have lost money in false economies and the engineers have lost an opportunity to develop a proper status for themselves and their offices. The work which they, because of their training, are best fitted to do is often delegated to men who, not having the ability to grasp the engineering features, waste thousands of dollars.

The error is one of policy or fundamental organization and rests principally with the management, although the engineers have been in part to blame. Engineers, under a false belief that engineering consists of surveying the field work, have failed to grasp the possible scope of their positions in many instances. Young engineers are inclined to give too much weight to the high-boot, flannel-shirt end of the work, neglecting the critical functions of competent record keeping, cost accounting and economic analysis. This characteristic may have led to a disinclination to assume the proper responsibilities or at least to negative aggressiveness in the matter of broadening the engineer's field of usefulness.

Heretofore, there has been no particular reason for keeping a railroad's property records up to a high standard of completeness, nor has there been any particular reason for requiring a high degree of efficiency in the expenditures for maintenance and improvement work. Now, however, the necessity for a change is indicated. No longer will incomplete records and uneconomical expenditures be tolerated. Federal valuation and the railroads' work incidental thereto have given all concerned a respect for engineering, accounting and statistical records, particularly cost records. I. C. C. Order No. 3, making mandatory the work of keeping the valuation records up to date, calls for more complete and thorough estimating, accounting and reporting than has heretofore been thought necessary. Recent legislation indicates that, in the future, expenditures for maintenance and improvements may have to be justified by economic analysis before being authorized and that the costs of doing work may be scrutinized and criticized in comparison with similar work on different roads.

All these considerations indicate that a skeleton centralized engineering department will no longer be adequate for the work involved. Proper handling of the work apparently calls for a strong divisional organization, the establishing of a competent, planning, supervisory, accounting engineer with adequate help in each unit field of action. It is plainly evident that to bring about the proper relation between the operating and engineering departments there must be, first: organization, with the lines of executive and technical supervision clearly drawn; second, adequate engineering personnel properly distributed; third, adequate authority and responsibility on the part of the engineer.

It is conceded that the property's interest must, in maintenance and improvement, be subordinated to that of transportation, hence it is intimated that the roadway engineer's position should be analogous to that of assistant superintendent assigned to the care of the property. The organization should be such as will permit the engineers to take an interest in the statistics and economics of transportation so that a percentage at least of the engineers can in time qualify for transfer or promotion into the operating or executive departments.

Preliminary to a discussion of an outline for the organization of a railroad engineering department, it is proper to consider the desires of the railroad engineer. Few of us are satisfied merely with nominal increases of pay. We want position and an assured status; we want to see before us a ladder that we can climb; we want an outlet; we want a regular and efficient organization that will clearly assign authority and responsibility and clearly indicate possible lines of promotion.

Engineering work is mostly analysis and sooner or later in our careers we reach a point where the acquired ability to analyze is directed to ourselves and our conditions. It is apparent, at least on some railroads, that the engineer's field is restricted to the engineering department, and that in the engineering department there are altogether too few worth-while positions to give many of us any great amount of encouragement. Study along these lines seems to indicate that the railroad engineers must obtain an outlet for at least part of their personnel in the operating, traffic and executive departments. The only alternative is to advocate the creation of more worth-while positions in the engineering department, or else to consider railroad engineering merely a field for obtaining a certain amount of experience, with the idea of stepping thence into some other and more lucrative line of work. The railroad field is, however, a worthwhile field for worthy men and it is well worth a big effort to attempt a proper organization of that field.

The subject is a large one and involves fundamentally the establishment of lines of procedure which embraces even the training of young engineers. It would seem advisable to advocate that engineers joining the corps be given a regularly prescribed course of training and that their progress be outlined somewhat similar to the following: A period in the field as rodman; a period in the bridge department on minor design; a period in the field as masonry, bridge and building inspector; a period in the accounting and stores department, then back to the division as lower grade instrumentman, or to the bridge department for progress as a higher class designer. Opportunity should be given some of the engineers doing bridge design to qualify as supervisors of bridges and buildings by giving them at a proper time a trial as assistant supervisors. Instrumentmen on divisions, when advanced to the highest grade, should be given opportunities as assistant supervisor of bridges and buildings, or as assistant roadmasters, to qualify as supervisors or roadmasters. Engineering supervisors of bridge and buildings and roadmasters should be given opportunity to qualify as trainmasters, or else move from those positions to that of division engineer. The latter should be given all possible chances to qualify for assistant division superintendent, etc.

The path of travel is but roughly thrown together here without much thought for consistency and co-ordination. Some such course of procedure must be drawn and fostered for the best interests of the railroad and particularly for the engineer. Such a system, when properly drawn, produces an esprit de corps, a loyalty to the company, that surely means in the end, economy and efficiency of transportation. Positions in engineering work which call for long years of service and experience should have proper salaries attached, so that transfer to other departments not having been accomplished, the engineer having arrived at such a position may feel that he has arrived somewhere.

CIVIL ENGINEER.

Economy of High Demurrage

SAN FRANCISCO, Cal., July 22.

TO THE EDITOR:

In the battle for life which is now engaging the energies of the railroads all over the country the rate for freight car demurrage is or ought to be one of the main issues, to be stressed on all fronts. The great need is freight cars. Everybody now realizes this. The great leak in our freight car wealth is the wrongful use of cars as storehouses. Demurrage is the only cure for this.

Everyone who has followed the demurrage campaigns of the last dozen years is familiar with the great reform carried out in this State under the direction of the late E. E. Mote, and knows how the six-dollar rate which was in effect here for several years was the most potent factor in car conservation ever heard of.

R. C. Munholland, the present manager of the Pacific Car Demurrage Bureau, is a worthy successor of Mr. Mote, and a recent circular from his office reviewing the history of California demurrage for twelve years is a document which all railroad men and shippers would do well to take the time to read.

This circular contains a ringing appeal, which should reach all railroads everywhere, to adopt demurrage rules *which will empty the cars,* and the argument is backed up with incontrovertible facts, and particularly the fact that in California the relaxation of the rates and rules which was ordered after the Government took the railroads did incalculable harm.

Commenting on the present situation, Mr. Munholland says:

"It is said the car shortage at the present time is 200,000 cars. Assuming that the average cost per car is $2000, it would require an investment of $400,000,000 to overcome the deficiency. Does it appear like a sane business policy to tie up capital, incur depreciation, interest and taxation on sufficient equipment to carry the peak load of four months of the year when traffic is normal or sub-normal for the balance of eight months? Why not have strict car conservation 365 days in the year and have equipment available when needed?" During the two years (1909-1911) that the six-dollar rate was in effect the results were summarized as follows:

"Shippers are careful to order no more cars than are needed, and to name the date on which they are wanted. It has increased the available track room at stations, prevented congestion or blockades at terminals and added to the efficiency of the switching service. Shippers give the matter of loading and unloading preferred attention. Shippers have taken very readily to the change, and everything considered, the $6 rate has been a distinct success, both in

keeping cars moving and getting a more equitable distribution."

A local freight train conductor testified: "Since the $6 rate has been enforced, it has helped our work at non-agency stations as well as at stations where agents are located, and it is done in one-half the time it took before. Parties who used to take the full limit, now sometimes unload in 24 hours. I have not heard a word of complaint from anyone. Sometimes I have thought it was rather hard in stormy weather when hauling was bad, but the parties found a way to release the cars before they would pay six dollars."

Considering that the purchasing value of a dollar has depreciated fifty per cent and the present cost of operation increasing at the same ratio since April, 1910, when we had the $6 rate, it is apparent that to produce the same result would now require a rate equivalent to $12 a day. The present rate of $2 a day is the cheapest storage of any character in our land, and as a result cars are being used as display rooms and storage warehouses.

Mr. Munholland concludes his circular with an appeal for a flat demurrage rate of $10 a day. He says, however: "I will recommend the adoption of our old efficient straight rules, with a minimum demurrage rate of $5 a day, with an increase of $1 in this rate, effective on the first day of every succeeding month until the desired result is obtained, i. e., real car conservation. The uniform demurrage rules and rates now in effect have not produced results. Their application has conclusively tended to increase both car detention and demurrage. * * * The California Commission has always worked for efficient rules and a high demurrage rate and against the average agreement in the best interest of shippers and carriers alike."

He summarizes the gospel of car conservation in the following sixty-three recommendations:

Proposed Changes in Demurrage Rules and Regulations

1. Increase demurrage rate to minimum of $5 per car per day with an increase in rate of $1 per day at first of each succeeding month.
2. Abolish the Average Agreement
3. Restore stringent and efficient demurrage rules similar to our former tariff.
4. Reduce free time on cars for loading to 24 hours, computed from actual spotting of car.
5. Reduce free time on export freight to a minimum of ten days or a maximum of 20 days, computed from arrival at port of exit. Shipping or embargo permits to be issued by one office for all rail lines.
6. Compute time on all cars held for unloading from 8 a. m. instead of 7 a. m., as at present.
7. Reduce free time on tank cars to 24 hours.
8. Eliminate extension of free time on account of weather conditions.
9. Charge demurrage for all Sundays and holidays after expiration of free time.
10. On cars ordered and not used assess charge of $10 when line haul involved, and $5 when moved from a point within switching limits.
11. Provide for collection of demurrage when dunnage or rubbish is not removed from cars.
12. Provide for collection of demurrage when carrier is prevented by causes beyond its control from removing cars from industrial plants after release.
13. Reduce free time on all cars and commodities to 24 hours in the event foregoing changes do not produce desired car conservation.

Furnishing Notices of Arrival of Cars

14. Give telephone notice of arrival on all cars received as quickly as possible, and confirm by postal card.
15. Whenever possible, mail postal card notices of arrival 24 hours of the day, seven days of the week.
16. Give advance notice to consignees of carload freight to enable them to take delivery immediately on arrival.
17. Encourage grain and produce dealers to establish clearing offices for purpose of receiving arrival notices and to give disposition of carload freight.

Car Distribution

18. Censor car orders at time given to prevent misuse of cars.
19. Accept car orders only in writing.
20. Place identification tags on all cars for loading to prevent misappropriation of empties.
21. Do not assign cars to any particular service unless kept fully employed at all times.
22. Give preference when possible to those who will load them promptly and heavily.
23. Eliminate use of cars for cross-town hauling, except where absolutely necessary.
24. Employ competent, well paid car distributors and assistants with full authority to make proper distribution and prevent misuse of equipment, eliminate cross-hauls and follow up delayed loads.

Demurrage Bureaus

25. Re-establish efficient demurrage bureaus throughout the United States.
26. Demurrage bureaus should publish monthly figures on car detention caused by cars being held for prospective loading, delays in spotting cars for unloading or pulling cars after released, or any other railroad delay.
27. To assist the Interstate Commerce Commission in arriving at remedial demurrage regulations, demurrage bureaus should publish statistics for each station monthly, showing cars released before free time began, in first and second day of free time, as well as cars under demurrage and the length of detention, charges and disposition of the same.

Terminal Charges

28. Reconsignment rules to be reconstructed, exceptions omitted and enforcement placed in hands of demurrage bureaus.
29. Provide charge of $10 on every car set out, held and picked up for inspection and grading of contents.
30. Provide charge of $10 on every car billed to shipper's order, notify.
31. Provide spotting charge of $5 for cars constructively placed or held on account of consignee being unable to receive them.
32. Provide charge of $1 per day on all tank and other private cars stored on carrier's rails.

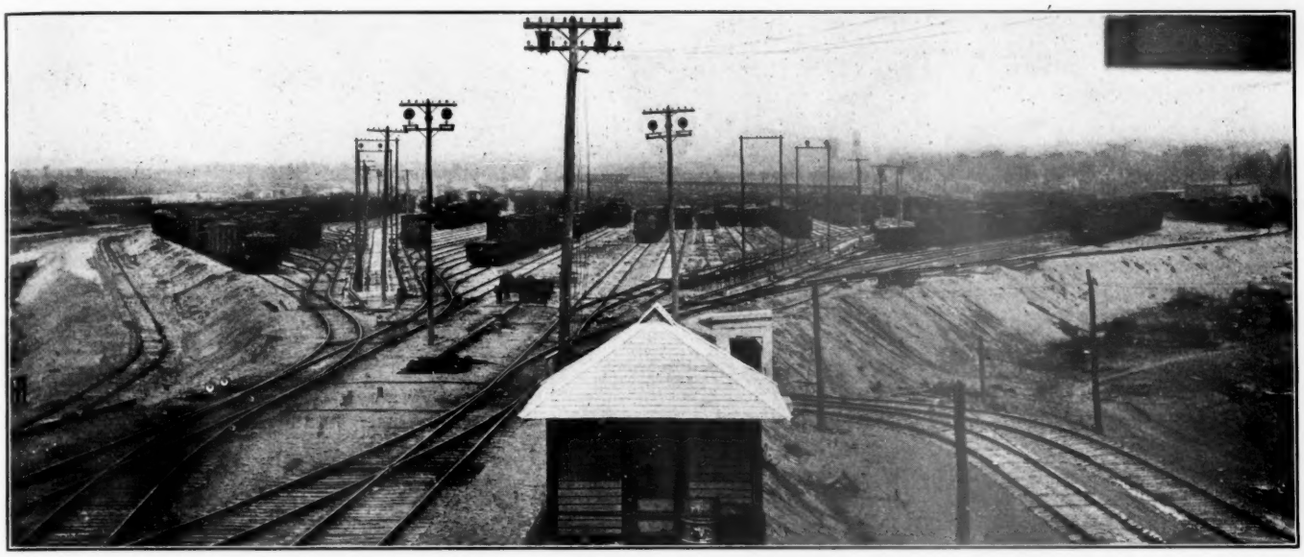
Train and Yard Movement

33. Prevail on shippers to have cars ready to move and billing in hands of agents in time to move forward by first switch or train service.
34. Classify cars when placed in trains with regard to station, track and industry destination to save switching at terminals, avoid congestion and "bottling up" of yards.
35. Put on extra trains, when necessary, to move cars set out at sidings to reduce tonnage or for bad order.
36. Reduce tonnage of trains so they can get over the road without breakdown in power.
37. Standardize time and number of switches to be given daily by yard engines.
38. Use switch foreman's work list as a check on work performed and to show time cars are spotted and time pulled from industries.
39. Have disposition slip made on every car received in yard and follow up with shipper or railroad employes religiously until car is released.
40. Install track sales at strategic points to avoid back or out of line hauls.
41. Install compressed air tube system wherever practicable to facilitate handling of waybills, car and disposition orders to expedite switching or movement of cars in trains.
42. Arrange for leasing power belonging to industries or contractors to do switching and relieve power shortage.
43. Make light repairs to cars in yard without switching to repair track.
44. Advance train clerks to work ahead of local trains to prepare their work.

Miscellaneous

45. Agents should refuse to accept bills of lading for shipments destined to [large city] terminal points unless consignees' street and telephone number are shown, and the name and number of the track on which car is to be unloaded.
46. Unload and store contents of refrigerator cars if not released within free time.
47. Terminal efficiency committees should have inspectors stationed at important stations to report fresh facts for committee's action; and sub-committees should be formed at all large terminals.
48. Restrict use of railroad telegraph wires with priority given to train movement, then to car handling and other business to follow in order of importance.
49. Impose penalty for detention of cars containing company freight and publish statistics showing departments responsible.
50. Publish statistics on delays in repairing bad order cars and follow up closely.
51 Establish joint car inspectors at interchange points to prevent disputes in application of M. C. B. rules.
52. Place all minor railroads that are common carriers on a per diem instead of a demurrage basis.
53. Encourage consignees to employ public draymen to handle team track cars, as they are the most efficient car releasers.
54. By analysis and comparison encourage consignees to enlarge facilities and install improved appliances to release cars quickly.
55. Allow agents a percentage of all net demurrage charges collected at their station.
56. Number warehouses, doors or designate spots where cars are to be placed.
57. All car orders and bills of lading should be stamped with date and time received by agent at originating point.
58. Have advance man ahead of local trains, signal maintainers or track walkers take check of cars at blind sidings to save time of local freight crews and protect demurrage.
59. All diversions, whenever practicable, to be handled through commercial telegraph lines to relieve railroad wires and insure quicker action.
60. More speed in placing embargoes at the commencement of a congestion.
61. Make special arrangements with Post Office Department to speed up delivery of post card notices of arrival of carload freight. (This plan has been followed out heretofore with great success.)
62. Encourage industries to install devices for doing their own interplant switching.
63. Paving of public delivery tracks and removal of obstructions preventing quick release of cars.

GOLDEN GATE.



The North and Eastbound Classification Yard, Speeder Tracks and Tunnel Portals on the Right

New Haven Builds Freight Yards at Cedar Hill

The Largest Unit of a Comprehensive Plan for Improved Terminal Facilities Nears Completion

TO RELIEVE CONGESTION on the main line and in existing terminals, the New York, New Haven & Hartford now has under way a construction program involving an expenditure of more than $6,000,000 for yard and classification facilities. This program, which was outlined in a preliminary manner on page 1166 of the May 10, 1918, issue of the *Railway Age,* includes three main projects: a freight classification yard and engine facilities at Cedar Hill, New Haven, Conn., a classification yard and engine facilities at Pawtucket, R. I., and a freight terminal and classification yard at Boston, Mass. The Cedar Hill layout will furnish the facilities to receive trains from all lines converging at New Haven and for classifying the received cars into trains for the proper destination. The facilities at Pawtucket will serve the same purpose for the lines converging at Providence, and those at Boston for the lines converging at that point. With the completion of these facilities the necessity for extensive classification at various other terminals will be obviated and important operating economies will be effected. Of the three major projects in the program, the one at Cedar Hill is the most important.

This project involves the construction of two hump yards; one for westbound traffic, and the other for east and northbound traffic, each with receiving, classification and departure yards. The plan also provides for the construction of a receiving and departure yard for Shore Line trains, additional engine facilities, including a new 18-stall engine house, an l.c.l. transfer station with its supporting yard, a coal storage yard, a material yard and storehouse, a small machine shop, additional inspection pits and pantagraph inspection platforms for electrical equipment, including connections. The yard, when complete, will be six miles long and one-half mile wide and will furnish standing capacity for 11,000 cars.

It will contain 95 miles of tracks and 460 switches. The construction involves 2,836,000 cu. yd. of grading, 23,000 cu. yd. of concrete, 2,000 piles for masonry supports and 3,000 lin. ft. of single track trestle for inner crossings.

Important Sections Completed First

Construction was begun in June, 1917, and the work has been carried on with the idea of completing first those units or parts of units which, when placed in service, will be of the greatest value in relieving congestion. In accordance with this program six freight relief tracks with a combined capacity for 396 cars, located in the southerly limits of what will be eventually the New York-and-Maybrook receiving yard and a track connecting this unit with the Shore Line, were completed in 1917.

By the end of 1919, seven additional tracks having a combined capacity of 750 cars were completed in the northerly limits of the New York-and-Maybrook receiving yard, in addition to 44 tracks in the north-and-eastbound classification yard, four pull-out tracks extending from the classification yard into the northbound departure yard and a backhaul connection leading from the pull-out tracks to the freight relief tracks which were completed in 1917. A winter and a summer hump track between the seven tracks of the New York-and-Maybrook receiving yard and the 44 tracks in the classification yard were also completed.

In addition to this, there has been completed a northbound connection to Hartford, a loop connection to the New York-and-Maybrook departure yard for westbound movements from the Shore Line to that yard, two l.c.l. transfer platforms, 1,200 ft. long and 20 ft. wide with eight complementary tracks, a material storage yard and a 100,000-ton coal storage yard. The work now under way consists of the double tracking of the New Haven connection, and the filling in and laying of tracks for the southbound and the Shore Line receiving yards and the westbound classification yard. Two tracks will be added to the present New York-and-Maybrook receiving yard, making a total of nine tracks to be operated during 1920. An additional l.c.l. freight platform, 1,200 ft. long and 30 ft. wide, is also under construction. Each l.c.l. platform is being constructed in a slightly different manner; and in connection with this, various types and kinds of roofing and roof construction are being tried out.

The completion of these units permits the receiving of trains from either the east or the west on the seven tracks in the New York-and-Maybrook yard, the classification of these cars into trains on the 44 tracks completed in the north-and-eastbound classification yard and the use of the six freight relief tracks as a temporary departure yard for both east and west movements, or, in other words, for the New York and Western divisions and for Providence, Boston and other points east. Several units were placed in service and the classification of cars over the hump was begun on December 15, 1918. As a result of the opening of operations here the stress at other points was relieved materially, allowing a reduction in the number of switching crews at various other terminals.

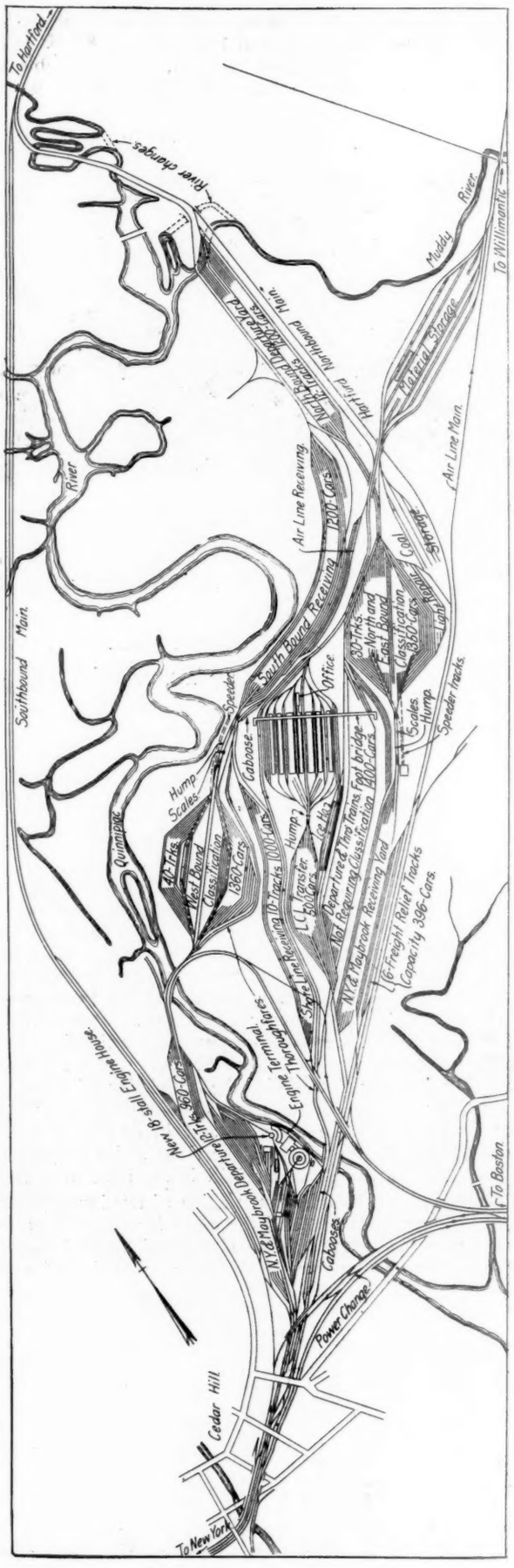
The New York-and-Maybrook receiving yard, when complete, will consist of 14 tracks, each having a standing capacity of 100 cars. Of these 14 tracks, the seven now in service as receiving tracks have been completed on the permanent line and grade. Five of the six tracks in the temporary departure yard are also included in this main unit. These five tracks as now built have a capacity for only 66 cars each, although evenually they will be extended to accommodate 100 cars. The receiving tracks are divided into two sections by a series of cross-overs, the section at the head or hump end of the yard providing space on each track for 60 cars, while each track back of the cross-over will accommodate 40 cars. By this arrangement, it is possible to receive and classify short trains without tying up an entire track. These cross-overs are permanent and will be extended all the way across the unit when it is completed and finally thrown into service as a receiving yard. The completed north and eastbound classification yard consists of 40 tracks and 4 repair tracks with a total capacity for 1,350 cars.

The completed facilities at the hump consist of a summer and a winter hump track, each provided with scales, speeder tracks leading to the north and south units of the classification yard, a garage for the hump riders cars, an office for the conductor of the hump, a car riders' building, a signal tower and auxiliary air supply facilities. Electro-pneumatic switches have been provided at the hump and the head end of the classification yard. The signaling apparatus consists of a standard electro-pneumatic outfit. Three air whistles in the New York receiving yard and one at the hump, which may be operated either by the towerman or the conductor of the hump, have been installed in amplification of the signals. These are used to convey warning to hump engines in case of trouble at the head end of the train. Floodlights have been installed throughout the hump district.

Maximum Efficiency Secured in Classification

In the design of the classification facilities, the principal objective was to ensure the passing of 180 cars an hour over the humps. Different profiles had, of course, to be developed over the winter and summer humps and one of the problems of design was the harmonizing of the grades from one hump track to the other to permit of the efficient operation of the diamond cross-overs which have been installed between these tracks to secure flexibility in the layout.

These profiles have been worked out to secure a speed of cars of from four to five miles an hour when leaving the last switch in order to make the run to the end of the yard. With wind resistance varying from 8 to 20 lb., the speeds are 4 and 5 miles per hour at the scales, accelerating to 12.5 to 15 miles an hour entering the switches and to 12.5 and 18 miles an hour leaving the last switch. Over the summer hump, the grades established were 1.0 per cent over the scales, then 1.25 per cent for 125 ft., and 3.0 per cent for 897 feet to the end of switches. Over the winter hump, the grades are 1 per cent over the scales, then 2 per cent for 80



General Plan of the Cedar Hill Yard

ft., followed by 5 per cent for 48.5 ft., 1.25 per cent for 40 ft., and 3 per cent for 100 ft. and 1 per cent for 897 ft.

With the speed of cars predetermined, it was possible to locate the switches with reference to the summit of the hump so that the desired number of cars per hour could be classified over the hump, at the same time ensuring ample time for them to clear cars following.

A Howe track scale has been provided under the winter

The New York and Maybrook Receiving Yard and Lead to Hump

hump and a Buffalo scale under the summer hump, both being of the dead-rail type. The scale pits, which are of concrete, are unusual for their size and convenience, all the scale parts being easily accessible for inspection and repairs. The two pits are connected by a concrete passageway which permits the removal of parts of either scale through one exit, although an exit is provided for each. A door is provided at the end of the passageway nearest the winter scale, permitting the heating of this pit without the necessity of heating the entire pit layout. Both pits are lighted with electricity. The weighmaster's office, which is adjacent to the winter hump, is modern in all respects and provides ample space for the office force and records, as well as for lockers, toilets, etc. The summer weigh-house is constructed in a much simpler manner.

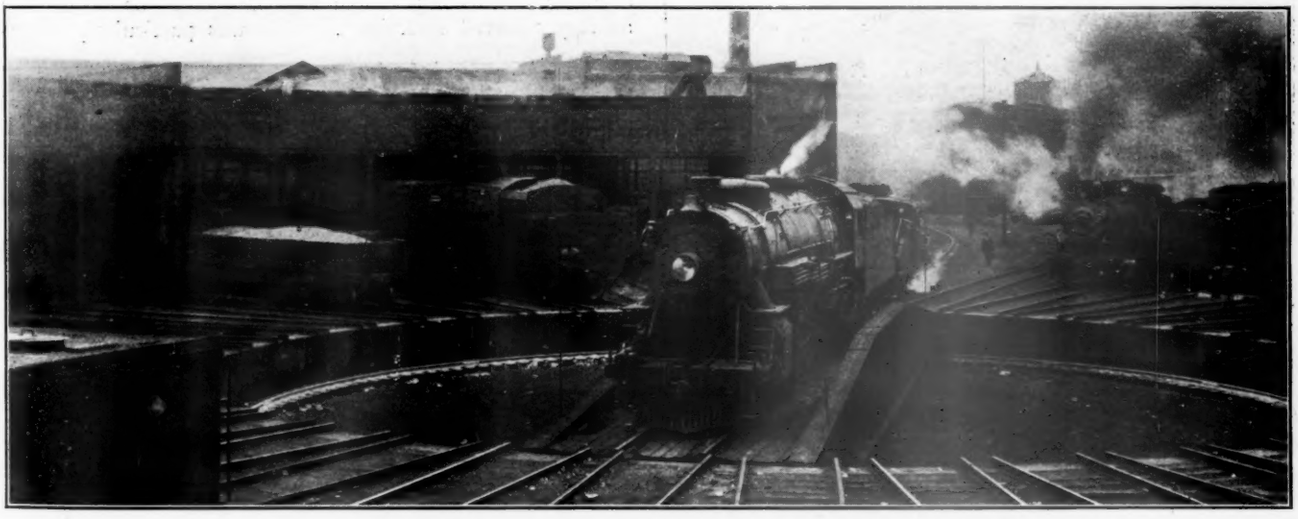
Two speeder tracks have been installed, one for each unit of the classification yard. These have been constructed to standard gage and extend from the car riders' building down to the throat of the classification yard, where they are carried under the railway tracks by means of concrete tunnels and thence into the yard between the leads in each section. The hump cars are of the Kalamazoo type and make the round trip in 3½ min., and this, in combination with the short distance which the car riders have to walk, has greatly reduced the number of men which would ordinarily be used. A garage which provides storage for the cars as well as shop facilities for making minor repairs has been erected back of and adjacent to the car riders' office. This last building is located alongside the winter hump track and also contains lockers, toilets and other conveniences for the car riders. The remaining buildings at the hump are the office for the hump conductor and the signal tower. These are of the usual type.

The main supply of air for the operation of the switches, etc., is carried in a 4-in. and a 3-in. line from a compressor unit in the engine house to the hump, a distance of approximately 6,000 ft. Expansion bends are provided every 400 ft. and connections for tie tamping purposes occur at intervals of 150 ft. At the head end of the hump, air connections have been installed between the running rails for testing train lines before passing over the hump.

To prevent the bleeding of the supply and for use in case of accident to the main supply, two air reservoirs have been provided, one at the hump and one midway on the line. An auxiliary plant, consisting of an electrically-driven compressor connected to the main reservoir, has been installed adjacent to the signal tower. The capacity of the auxiliary plant is sufficient to handle the switches.

The Engine Terminal Facilities

In connection with the new freight terminal facilities, an 18-stall engine house has been completed which presents many interesting features. Its design was based on the use of timber in the roof construction and the supporting posts, and the outstanding feature is the plan which was developed to provide for ventilation and the removal of smoke without the use of mechanical devices or dependence upon the workmen for good results. This has been accomplished by means of ventilators permanently opened, provided in the monitors which extend over each engine pit for a distance of 31 ft. 3 in., and others, also permanently opened, provided over the doors in the inner circle wall. The action of these ventilators is continuous, insuring favorable working conditions in the interior of the house in all seasons. Because of the extent of the ventilators provided in the monitor, the efficiency of the system is not destroyed by the improper



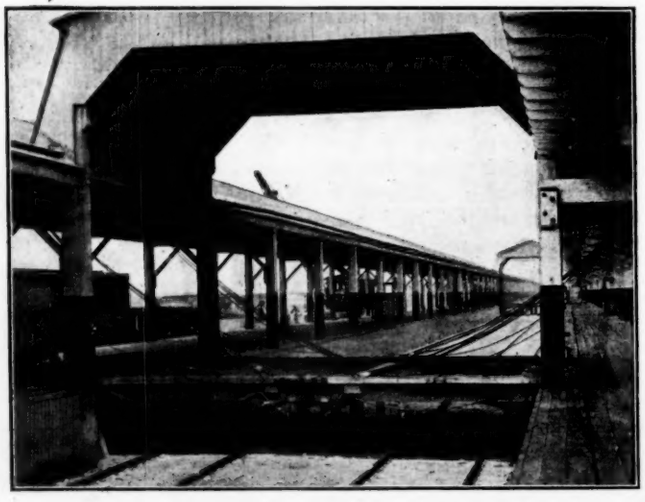
A View of the Engine Terminal Facilities

placing of locomotives on the pit; that is, when the locomotive stack does not come under the smokejack. This has been accomplished without interference with the efficient heating of the building. When desirable, additional ventilation may be had by means of the pivoted sash provided in the windows.

In planning the layout, provision was made for a 44-stall house, of which 18 stalls have been built. The center of the layout is occupied by a 95-ft. turntable, designed for a total load of 500 tons on the center pier and 150 tons on the end wheels, distributed over 20 ft. of the circle rail. The table is of the half-through girder type, operated by an electric tractor.

The posts in the inside wall of the house are on a circle of 93 ft. 5-13/32 in. radius and the house is 96 ft. 3 in. deep, the clear stall length being 95 ft. 1 in. The angle between tracks is 8 deg. 10 min. 54-6/11 sec., giving a distance center to center of posts in the inner circle wall of 13 ft. 4 in. and center to center of pilasters in the head-end wall of 27 ft. 1 in. Four 10-in. by 10-in. yellow pine posts resting on concrete piers are provided between stalls to support the roof beams. The main roof girders and the rafters are also of yellow pine and the roof consists of 2-in. matched spruce covered with a built-up roofing.

One of the drawings shows the details of the monitors,



The L. C. L. Platforms and the Connecting Bridge

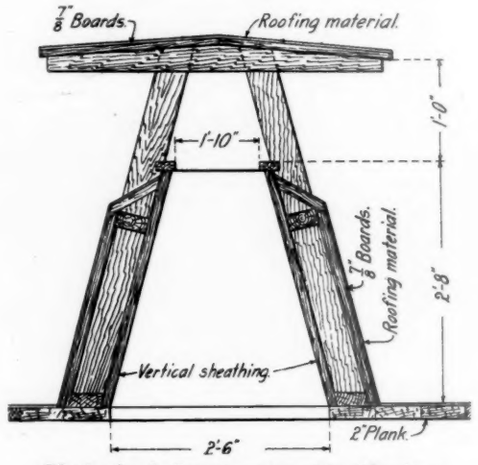
which are made up of 2-in. by 4-in. studs and 7/8-in. sheathing, covered with a built-up roofing on the weather side. The opening for ventilation is 2 ft. 6 in. wide at the main roof line, narrowing to one foot at the top, and the clear opening below the monitor roof is also one foot.

An Interesting Foundation Problem

The character of the earth foundation underlying the site complicated the work of placing the foundations, which are all of concrete supported on wood piles. Originally the site, which immediately adjoins the Quinnipiac river, was a swamp. The surface strata, approximately three feet deep, was a bog formation, directly underlaid with about 15 ft. of liquid mud. Under this was a strata of thicker mud, 15 to 20 ft. in extent, supported on stiff clay 25 to 30 ft. deep. To reclaim this land a rip-rap wall was constructed along the bank of the river. This served as a dam to prevent the filling material from wasting into the stream and in the filling-in operations the work progressed inland from the wall.

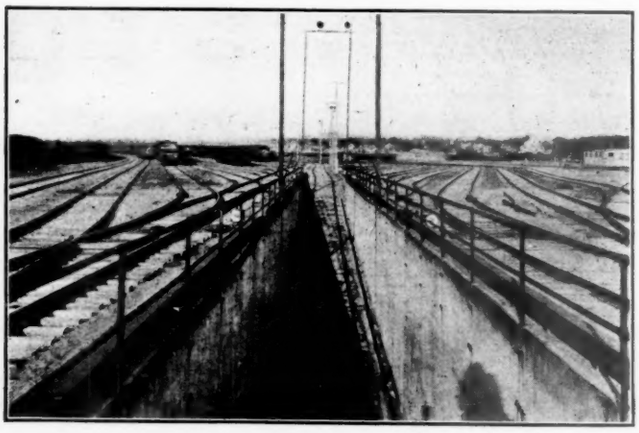
Prior to the construction of the house a complete circle of radial tracks and a 75-ft. turntable had been provided. It was necessary to continue these tracks in service, consequently the house was built in sections of from four to six stalls, each section being placed in service as soon as completed.

In preparing the foundations for the house the filling which has been placed for the radial tracks was removed by a clam-shell. The rip-rap wall adjoining the house was reinforced and the backfill made in the manner described above. After the excavation for a section was completed the piles were driven from the high level, followers being



Method of Constructing the Monitor

used. The pile driving outfit was equipped with a 3,000-lb. hammer and the piles were driven into the clay until the pentration did not exceed four inches. After standing one day test piles showed a penetration of only one inch under three blows of the hammer. However, owing to the unstable character of the formation about the clay it was considered necessary to provide against the deflection of the piles as they received their load. This was particularly neces-



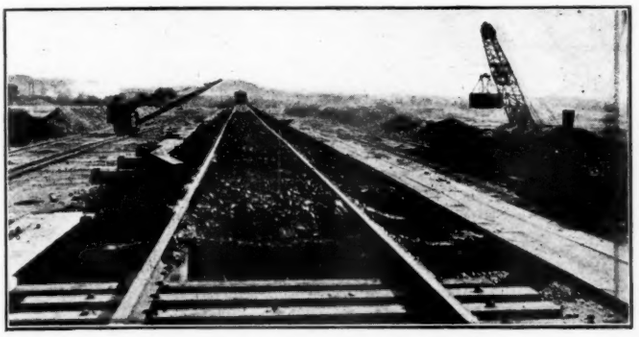
Outlet to One of the Speeder Track Tunnels

sary for the piles supporting the brick pilasters in the exterior wall anl before these piles were capped the eight piles in the clusters were tied together securely with two 1½-in. steel rods. These rods were run completely around the clusters and carried back 25 ft. into the engine pit foundations, where they were twisted around the pit piles.

The construction of the new turntable involved new circle walls and the rebuilding of the center pier, the foundation of the old pier not being capable of carrying the additional weight. This work was carried on under traffic. The change from the old 75-ft. table to the new, including the taking out of the old circle wall, was made in 20 hours.

The Interior Arrangements

The engine pits are all 79 ft. long and have been provided in all of the 18 stalls. One stall is crossed by a truck pit and the three adjacent ones by a drop pit. All the pits are of concrete, supported on piling. The engine pits have 24-in. side walls, providing good foundations for jacking operations. The walls are capped with 8-in. by 10-in. yellow pine timbers which carry the rails. Since this work was completed, one stall has been rearranged and a Whiting hoist



The Coal Yard for Winter Storage

installed. All of the pits are heated by steam coils, consisting of four rows of 1½-in. pipe all around the pit walls. These are covered with a galvanized wire grill of No. 10 wire and 1-in. mesh and are protected from injury by jacking operations by the 8-in. by 10-in. timber caps provided on the pit side walls for carrying the rails. These timbers are placed with a 3-in. offset into the pit and, with the grill, provide absolute protection. A combination of exhaust and live steam under reduced pressure with vacuum pumps to maintain circulation is used for heating purposes and, in addition to those provided in the pits, coils consisting of from 10 to 16 rows of pipe are provided on the outside and on the sectional walls.

A concrete pipe trench 5 ft. 1 in. by 7 ft. 1 in. extends around the building at the inner end of the pits. The trench carries the main steam, air and water lines and the main sewer. Owing to the character of the earth formation all branch conduits had to be supported, the air and water pipes and electric light conduits being carried on the outside pit wall and up the posts between stalls. All the piping is buried in sand to escape the action of gases and to protect it from the cinders in the filling.

Contrary to the usual arrangement the drainage is to the head-end wall rather than to the turntable pit. The main sewer runs in the pipe trench all around the house, the drainage being to the center from both ends. The cast-iron pipe sewer to the river is supported on piles and fitted with backwater gates which operate at flood tide.

The roof posts between stalls are equipped with blower sets and fittings for air, water and electric lights. They have been designed to fit any type of engine without the use of hose connections and, after use, it may be folded up out of the way on the post, drainage being secured by the automatic drip in the Barco joint. The vacuum pumps for the heating systems are located in the pipe tunnel.

This project has been carried out under the general direction of Edward Gagle, chief engineer of the New Haven, and I. D. Waterman, engineer of construction. J. M. Sullivan, assistant engineer of construction, was in direct charge of the work. The plans for the roundhouse were prepared by F. W. Mellow, architect.

Additional Rate Increases Proposed to Pay Higher Wages

A METHOD FOR PROVIDING the additional revenues needed to meet the increase in wages awarded by the Railroad Labor Board, by placing nearly half of the increase on passenger traffic, was submitted to the Interstate Commerce Commission on July 20 by Alfred P. Thom, counsel for the Association of Railway Executives, on behalf of the carriers in the Official, Southern and Western Classification territories. The proposal was submitted in the form of a supplemental application in the general rate case, Ex Parte 74, as follows:

The carriers in Eastern, Southern, and Western groups bring to the attention of the commission the fact that since the conclusion of the hearings herein, the United States Railroad Labor Board on July 20, 1920, made an award increasing the pay of railroad employees, effective May 1, 1920, the effect of which, as nearly as can now be estimated, is to increase the operating expenses of the carriers approximately $626,000,000 per annum, divided as follows:

Eastern group	$318,729,935
Southern group	69,909,491
Western group	237,281,659
Total	$625,921.085

The carriers respectfully suggest that the revenues required

One of the Many Heavy Cuts at Cedar Hill

to meet said wage award be provided in part from passenger traffic and in part from freight traffic, by increasing rates accruing from passenger traffic, both interstate and intrastate, and by increasing the percentage advances in freight and switching rates, already applied for, both interstate and intrastate, in the following manner, to-wit:

1. All passenger fares to be increased 20 per cent, with a minimum of not less than 10 cents per trip on any form of ticket. The foregoing includes: Standard local or interline fares; excursion, convention and fares for other special occasions; commutation and other multiple form of ticket; extra fares on limited trains, and club car rates.

2. All excess baggage rates to be increased 20 per cent.

3. Surcharge on sleeping and parlor cars to be made 50 per cent of the charge for space occupied either in parlor or sleeping cars.

4. Milk. Increase all rates, both passenger and freight, same total percentage applied to freight revenue.

5. Freight and switching revenues to be increased sufficiently to yield the balance of the revenue required to meet the increased operating expenses due to the Labor Board award, in addition to the percentage increase already proposed in this proceeding. The increased amounts thus to be provided from freight traffic and switching service are arrived at as follows: If the increases proposed above on traffic other than freight and switching are made effective on all such traffic, state and interstate, and if the volume of business equals that of the year ended October 31, 1919, the estimated increased revenue accruing therefrom will be as follows:

missions have no power to increase passenger fares, it will be necessary for the carriers to apply to the Interstate Commerce Commission for relief. While such proceedings are being taken it is very doubtful, owing to the relation between interstate and intrastate passenger fares at important basing points, whether the proposed interstate rates can be made effective in many cases. It must, therefore, be anticipated that, for a period of several months at least, the full benefit of the proposed basis of passenger rates cannot be secured and that the carriers will in fact fall many million dollars short of securing it. It follows that, unless the situation above outlined can be met promptly, further increases on other traffic than those now proposed will be needed.

A similar situation to that above outlined as to passenger rates exists in some of the states as to the proposed increased freight rates.

The proposed advance in passenger fares is likewise based upon the assumption that the passenger traffic will remain as heavy as during the year 1919, notwithstanding the fact that the passenger traffic of said year was the largest in the history of the carriers, including as it did a large movement incident to demobilization, and notwithstanding the possible effect of said increased passenger fares and the imposition of surcharges in parlor and sleeping cars upon passenger travel and passenger revenue; and carriers state that if, as may well be, there is a falling off of passenger travel or a falling off in the number of persons occupying parlor and sleeping cars, the estimated increased revenue from passenger traffic will not be realized and it will become neces-

	Eastern	Southern	Western	Total
1. Passenger revenue (Inc. 20 per cent)	$111,668,982	$29,826,401	$92,332,599	$233,827,982
2. Excess baggabe (Inc. 20 per cent)	527,888	180,017	713,090	1,420,995
3. Surcharge in parlor and sleeping cars (50 per cent of P. & S. car rate).	17,556,108	5,852,036	20,231,200	43,639,344
4. Milk revenue (Inc. same as freight)	6,956,416	252,115	1,453,558	8,662,089
Total amount to be raised from above sources	$136,709,394	$36,110,569	$114,730,447	$287,550,410

The amount remaining to be provided from freight traffic and switching service and the resulting additional percentages of increase in freight and switching revenues required in order to meet the wage award are as follows:

	Eastern	Southern	Western	Total
Wage award	$318,729,935	$69,909,495	$237,281,655	$625,921,085
Increased revenue from Items 1-4 listed above	136,709,394	36,110,569	114,730,447	287,550,410
Balance to be obtained from freight and switching	$182,020,541	$33,798,926	$122,551,208	$338,370,675
Percentage of freight and switching revenue	10.00%	8.57%	8.23%	9.13%

These additional percentages added to the percentages already proposed in this proceeding produce the following total percentages of increase in freight and switching rates necessary to take care of the requirements already shown and the wage board award:

	Eastern	Southern	Western
Original application as revised at hearing	29.75%	30.34%	23.80%
Additional percentages required	10.00%	8.57%	8.23%
Total percentages required	39.75%	38.91%	32.03%

The proposed advance of 20 per cent in passenger fares is, as hereinbefore stated, based upon the assumption that the same percentage of advance is to be made in intrastate fares. Intrastate passenger traffic contributes approximately 50 per cent of the total passenger revenue. The attention of the commission is called to the fact that in many states there are statutory enactments undertaking to fix passenger fares 3 cents per mile or less. While existing rates of 3 cents per mile in such states are continued in effect by the Transportation Act, it will be necessary to give careful consideration to the situation that will arise as to proposed rates in excess of that amount. In those states where the state commissary to look to other sources of revenue to make good the resulting deficiency.

The foregoing proposals embody the suggestions of the carriers as to the manner and sources from which the increased revenue required to meet the award of the Labor Board should be provided.

They, therefore, ask that, in addition to the advances in freight and switching rates heretofore applied for in this proceeding, the commission initiate or authorize the increases in rates herein proposed or such other increases as, in the judgment of the commission, are meet and proper and as will, in connection with the increases heretofore proposed, yield the aggregate net railway operating income heretofore sought herein.

More Pay for Railroad Employees.—That the railroads can foot the bill presented to them without an addition to their revenues much greater than the award it would be nonsense to believe, so imperative is the necessity for new rolling stock and betterments.—*Brooklyn Eagle.*

The Railroad Wage Award.—It is not to be believed that the railroad labor unions so misunderstand the drift of affairs as might appear from some of their comments upon the action of the board. Certain dark hints of what the men may do to express their imputed dissatisfaction with their lot may be taken at a generous discount. It is considered good labor union tactics never to admit that a wage settlement distantly approaches justice. The public may confidently expect after a few days to see the men accept the Labor Board's decision as a good thing, and settle down to their work as they have not done at any time in the past three years.—*The Wall Street Journal.*

Brotherhood "Unit-Action" on Wage Award Fails

Labor Leaders Disagree on Merits of Labor Board's Decision and Order a National Referendum

THE SIX MILLION DOLLAR wage increase granted railway employees on July 20 by the Railroad Labor Board, proved a disappointment to the brotherhood leaders who demanded almost double that amount. Meeting in Chicago, the leaders of all of the unions affected by the award spent three days in a fruitless endeavor to promulgate "unit-action" or rather "unit-reaction." All of the brotherhoods, however, with the exception of the Order of Railway Telegraphers, individually, through their general chairman, voted either to accept the award outright, under protest or with or without recommendations to the rank and file.

When the grand council composed of the chiefs of 16 organizations, started the third day of deliberations over the award, (July 23) the various brotherhoods and unions had alined themselves as follows:

Accepted Outright

Brotherhood of Railway Trainmen.
Brotherhood of Locomotive Engineers.
Brotherhood of Locomotive Firemen and Engineers.
Masters, Mates and Pilots of America.
Brotherhood of Stationary Firemen and Oilers.

Referred to Rank and File with Recommendations of Acceptance

International Association of Machinery.
Sheet Metal Workers' International Alliance.
Switchmen's Union of North America.
United Brotherhood of Maintenance of Way Employees and Railroad Shop Laborers.
Brotherhood of Railway Car Men of America.
International Brotherhood of Electrical Workers.
International Brotherhood of Boilermakers, Iron Ship Builders and Helpers of America.
International Brotherhood of Blacksmiths, Drop Forgers and Helpers.

Ordered Referred to Employees Without Recommendation

Brotherhood of Railway Signalmen.
Railway Employees' Department, American Federation of Labor.
Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees.

Rejected

Order of Railway Telegraphers.

Undecided

Order of Railway Conductors.

The line-up outlined above was held through a session of heated debate on July 22, in which those of opposing opinions attempted to argue all the groups to their viewpoints. The unions which had flatly accepted refused to yield, and those which had decided to call referendums with the recommendation to accept would go no further. The conductors later accepted the award but did so only after adopting a resolution of protest.

"However disappointing the decision is," said L. E. Sheppard, president of the Order of Railway Conductors, "the conductors feel that the public interest demands its acceptance and they do accept it with the reservation that a new petition will be submitted asking further consideration in respect to certain matters."

E. L. Hardy and A. M. Everett, respectively chairman and secretary of the United Brotherhood of Maintenance of Way Employees and Railroad Shop Laborers, also protested the award and asked that the Board fix a date for the introduction of a proposed schedule of further increases.

E. J. Manion, head of the Order of Railway Telegraphers, in explaining that organization's action said:

"The Order of Railroad Telegraphers has been discriminated against by the Board. We received generally a smaller award than any other organization and its representatives have accordingly referred the award to the membership for a strike vote or such other action as it shall determine."

Referendum Order Promulgated

Executives of the railroad brotherhoods, at a secret session on July 24 prepared an order for a nation-wide referendum by railway employees on the award. The completed order was a strong plea against a strike. Beginning before the passage of the Adamson law, it recites the history of railroad wage disputes. It pays incidental compliments to William G. McAdoo for concessions made the railroad men, but in each instance adds that they were not granted all they were entitled to. It reviews the hearings before the Railroad Labor Board, emphasizes that "your representatives did their very best" and points out that an attempt "to obtain a rehearing was denied."

"The Labor Board," the order continues, "is the highest court of appeal in this controversy. No higher tribunal is created by the Transportation Act, and its decision must either be accepted or rejected without further negotiation."

The order then recites the merits of the employees' service and continues: "Although the award was much less than the employees should have been awarded, much less than they were entitled to, and although they are, and have a right to be, disappointed with the amount of increase in wages granted, more than 84 per cent of them have agreed through their representatives to accept the award."

There follows an appeal to the federated shop crafts to vote in support of the action of the majority. The concluding section instructs the men to meet and prepare ballots on the rejection or acceptance of the order. It is estimated that no tabulated returns on any vote by the men will be received prior to September 1.

Outlaw Organizations Reject Award

The delegates selected to represent the various "outlaw" rail organizations of the country, voted unanimously to reject the proposals of the Board, because they contained no provision restoring the seniority rights for the men who struck last April. Power to settle the controversy was vested in John Grunau, president of the Chicago Yardmen's Association, by the delegates with the understanding that no negotiations would be opened unless the switchmen, firemen, and engineers be given their seniority rights.

A new policy by the federal government in regard to the outlaw unions which have crippled switchyards for two months was put into effect on July 23, bringing virtually an ultimatum to return to work by the morning of July 26 or face grand jury action under the Lever act. In dealing with the insurgents the government has brought to light the possibility of a new fight between the Brotherhood of Railway Trainmen and the Switchmen's Union of North America, which was formed in 1900 after the trainmen's organization had been defeated in the switchyards strike. The Switchmen's Union of North America was given contracts with

the roads to furnish switchmen. Recently, however, the union has been unable to supply men at Columbus, Ohio, and at Buffalo, N. Y. The roads involved appealed to the trainmen's organization and obtained help. The only organization now able to fill the outlaw strikers' places is the trainmen's and, if it should take over the switchmen's union contracts, the latter, it is said, will be virtually forced out of existence.

Federal subpoenas were issued for 60 railroad officers and labor executives at the request of District Attorney Charles F. Clyne, on July 23. The subpoenas are the outcome of the "outlaw" switchmen's strike, engineered, it is alleged, by John Grunau, a short time ago, which tied up yard traffic and hampered railroad operations thruout the nation.

Grunau and 27 of his associates were arrested at the time, but federal attorneys evidently delayed action after the rail wage decision. The officers summoned will appear before the grand jury on July 28 to tell what they know of Grunau's operations.

Expressmen Apply for Increased Wages

Representatives of the four organizations of employees of the American Railway Express appeared before the Labor Board on July 22 and applied for wage increases. These employees, numbering more than 70,000 were not included in the $600,000,000 award. They are asking from 25 cents an hour to $35 a month increases as well as improved working conditions. L. R. Gwyn, representing the American Railway Express, presented the side of the express companies before the Board. He indicated that the companies' attitude toward the application was not hostile, but at the same time pointed out that the companies now are operating under a deficit and have been so operating for a considerable time.

Senator Harding on Railroads

SENATOR WARREN G. HARDING, Republican nominee for president, in his recent speech accepting the nomination, clearly outlined the railroad issue and its principles for his party as follows:

"I am thinking of the railroads. In modern life they are the base of all our activities and interchanges. For public protection we have enacted laws providing for a regulation of the charge for service, a limitation on the capital invested and a limitation on capital's earnings. There remains only competition of service on which to base our hopes for an efficiency and expansion which meet our modern requirements. The railway workmen ought to be the best paid and know the best working conditions in the world. Theirs is an exceptional responsibility.

"They are not only essential to the life and health and all productive activities of the people, but they are directly responsible for the safety of traveling millions.

"The government which has assumed so much authority for the public good might well stamp railway employment with the sanctity of public service and guarantee to the railway employees that justice which voices the American conception of righteousness on the one hand and assure continuity of service on the other.

"The importance of the railway rehabilitation is so obvious that reference seems uncalled for. We are so confident that much of the present day insufficiency and inefficiency of transportation are due to the withering hand of government operation that we emphasize anew our opposition to government ownership, we want to expedite the reparation, and make sure the mistake is not repeated.

"It is little use to recite the story of development, exploitation, government experiment and its neglect, government operation and its failures. The inadequacy of trackage and terminal facilities, the insufficiency of equipment and the inefficiency of operation—all bear the blighting stamp of governmental incapacity during federal operation.

"The work of rehabilitation under the restoration of private ownership deserves our best encouragement. Billions are needed in new equipment, not alone to meet the growing demand for service, but to restore the extraordinary depreciation due to the strained service of war.

"With restricted earnings and with speculative profits removed, railway activities have come to the realm of conservative and constructive service, and the government which impaired must play its part in restoration. Manifestly the returns must be so gaged that necessary capital may be enlisted and we must foster as well as restrain.

"We have no more pressing problem. A state of inadequate transportation facilities, mainly chargeable to the failure of governmental experiment, is losing millions to agriculture, it is hindering industry, it is menacing the American people with a fuel shortage little less than a peril.

"The one compensation amid attending anxieties is our new and needed realization of the vital part transportation plays in the complexities of modern life. We are not to think of rails alone, but highways from farm to market, from railway to farm, arteries of life blood to present day life, the quickened ways to communication and exchange, the answer of our people to the motor age."

Comparative Value of Timber Cut from Live and Dead Trees*

PREJUDICE EXISTS in certain quarters against the use of timber cut from dead trees, and some purchase specifications insist that only timber cut from live trees will be acceptable. As a matter of fact when sound dead trees are sawed into lumber, and the weathered or charred outside is cut away, there is no method known to the Forest Products Laboratory by which the lumber can be distinguished from that cut from live trees, except that the lumber from dead trees may be partially seasoned when sawed.

All the information available at the laboratory indicates that timber cut from insect or fire-killed trees is just as good for any structural purpose as that cut from live trees of similar quality, provided the wood has not been subsequently injured by decay or further insect attack. If a tree stands on the stump too long after it is killed, the sapwood is likely to become decayed or badly infested by wood-boring insects; and in time the heartwood also will be similarly affected. The same thing is true of logs cut from live trees and not properly cared for. Until the wood becomes affected by these destructive agents, dead tree wood should be just as strong and just as durable as sound live tree wood.

In considering the subject it may be useful to remember that the heartwood of a living tree is entirely dead, and in the sapwood only a comparatively few cells are living. Most of the wood cut from trees is dead, therefore, regardless of whether the tree itself is living or not. Such being the case, purchase specifications, instead of providing that material must not be from dead trees, should state that material showing evidence of decay or insect infestation exceeding a specified limit will not be accepted.

THE MEMBERSHIP of the National Union of Railwaymen of England on June 1 was 481,081.

*From Technical Notes No. 101 issued by the United States Forest Products Laboratory, Madison, Wis.

New Policy for British Railways Outlined

Sir Eric Geddes Flatly Opposes Nationalization—Regrouping and Other Changes Suggested

LONDON, July 1.

A SCHEME for a proposed regrouping of the railway lines of England and Scotland was outlined in the *Railway Age* of May 7, 1920. The article in question, quoted from Modern Transport, pointed out that such a scheme was under consideration by the Ministry of Transport and aimed to show how far the idea had been worked out at that time. Sir Eric Geddes has since outlined this scheme in more detail and in addition has also pointed out the policies the Ministry of Transport is ready to advocate for the future welfare of railway transportation in the United Kingdom. Sir Eric's ideas are presented in some detail below. American readers will be interested particularly in his flat-footed statement against the advisibility of nationalization and will no doubt readily come to the conclusion that Sir Eric has been reading their own Transportation Act.

Opposes Government Ownership

"The experience of other lands," says Sir Eric, "proves that state management would never pay the market price for the best brains, which is a handicap you could never get over. The evidence that I have collected shows that state management is costly, lacks initiative and becomes red tape. Another thing which must impress everyone was summed up in the Report of the Royal Commission in Italy that politics corrupted railway management, and railway management corrupted politics. I do not believe that in this country, with our national characteristics, with our constitutional practice, it would be possible for the state to run and manage the railways as well as private ownership."

The government, therefore, after considering the disadvantages of state ownership of the railways has decided not to recommend nationalization. The government having ruled out nationalization, Sir Eric Geddes, Minister of Transport, has isued the following outline of his proposals as to the future organization of transport undertakings in Great Britain, and their relation to the state. It has yet to be seen whether this scheme will be adopted.

Regrouping

Sir Eric Geddes, in his new scheme, proposes that the railways of Great Britain should be formed into a limited number of groups—say five or six for England and Wales and one for Scotland. The Irish railways naturally will be dealt with, under the new legislature in regard to Ireland. The groups are to be determined on the basis of operating economy and all direct competition between the groups will, as far as possible, be eliminated. The groups proposed to be formed are approximately as follows:

1. *Southern*—The South Eastern & Chatham, the London, Brighton & South Coast, and the London and South Western.
2. *Western*—The existing Great Western System and the Welsh lines.
3. *North Western*—The London & North Western, the Midland and the Lancashire & Yorkshire, and the North Staffordshire and Furness.
4. *Eastern*—The Great Northern, the Great Central and the Great Eastern.
5. *North Eastern*—The existing North Eastern and the Hull and Barnsley railway.
6. London Group—(Local lines).

Scotland. 1. A Scottish group for the whole of Scotland.

Amalgamation to Be Voluntary

In each case the group would absorb the smaller and independent standard gage lines within its area, but railways which may be classified as "light," whether existing or future, will be wholly excluded from the grouping arrangement, and proposals with regard to these light railways are indicated later on.

It is hoped that the amalgamation of the companies in the respective groups will be carried out voluntarily, but as the scheme depends on the amalgamation, powers will be sought in a future Transport Bill to compel amalgamations (on terms failing agreement to be settled by some tribunal), in any cases where they are not voluntarily completed in a reasonable time to be specified.

It is recognized that a more logical grouping of the existing systems might result if regard were had exclusively either to geographical or to operating considerations; but the amalgamation of complete undertakings, as the initial step, will avoid many of the difficulties which would arise if undertakings had to be divided. It would be open to the new group of companies to exchange between themselves lines which project from the territory of one group into that of another, and at a later stage it may become necessary to require them to do so.

Management

Each of the group railways will have a board of management, and in order to secure efficiency and uniformity, and avoid undue cost, the number of members composing the board should be limited to probably 21. The composition of the board is considered to be of the greatest importance, and while in the past the directors of railway companies have all been appointed by the shareholders, the government is of opinion that the time has arrived when the workers—both officers and manual workers—should have some voice in management.

The board of management should, in the opinion of the government, be comprised of representatives chosen as follows:

(a) of the shareholders, who should form a majority on the board, and of whom a proportion should hold large trading interests;

(b) of employees, of whom one-third might be leading administrative officials of the group, to be chosen by the rest of the board, and two-thirds members elected from and by the workers on the railway.

Finance

The act of parliament should lay it down that rates and fares shall be fixed at such a level as, with efficient and economical management, will in the opinion of a prescribed authority enable railway companies to earn a net revenue substantially equivalent, on some pre-war basis to be settled in the act, to the combined net revenue of all the companies absorbed in the group. With due care and economy it should be possible for group companies to improve on their pre-war return; but in that event the government is of opinion that such surplus revenues should not accrue entirely to the companies. The state would be very materially extending the "charter" of the companies and is entitled to participate in such surplus revenues, and settlement of a suitable sliding

scale to regulate their division presents no insuperable difficulty.

Development Fund

It is not contemplated that the government's share of the surplus revenues should be thrown into the general revenue of the country. Much development work has to be done, which is beyond the financial resources of the localities, and the intention is that the government's share of these surplus profits should be funded for development purposes, to assist backward districts, to develop light railways, and for other appropriate purposes in connection with transportation, as may be approved by Parliament in the act.

Rate-Fixing Machinery

The financial stability of the groups, on the one hand, and reduction of rates on the other can, in the opinion of the government only be assured if there is adopted a procedure for fixing rates which, whilst being flexible will command the confidence of the railways and traders. The Statutory Rates Advisory Committee is now engaged upon a systematic review of railway rates and charges, the principles on which they are to be fixed, the machinery by which they shall be governed, and the committee's reference will later be extended to cover fares.

The machinery for dealing with the railway rates and charges of the country is generally admitted to rest upon an unsatisfactory basis; but it is hoped to place the whole system of rates and charges upon a sound footing, after the Rates Advisory Committee has reported.

The first object of the revision will be to secure financial equilibrium to the railways of Great Britain as a whole, and it is anticipated that, having regard to the size and diversity of traffic conditions in each group, the revision in aiming at this result will also secure an approximate equilibrium within each of the proposed groups. If, however, revenue were not obtained at least equal to the basic revenue agreed upon, the procedure contemplated is, that the Rates Advisory Committee—or whatever body may be appointed to exercise its functions—should be asked to consider modifications in the scheme and to make recommendations to the Minister as today.

It is not possible at this stage to indicate in detail what machinery should be set up for dealing with appeals from traders on railway rates. The Rates Advisory Committee is conducting an exhaustive inquiry, and the government must await its report before it can embody any proposals in a bill.

The government does not propose to give to the companies any financial guarantee. It proposes to set up a flexible rates machinery, which will enable appropriate charges to be levied, and to leave the railway companies to rely upon this machinery for the maintenance of the financial position of the groups at the level agreed.

The earnings of the companies must, of course, be subject to the normal fluctuations of traffic and to the express stipulation that the undertakings are being managed with due care and economy. This stipulation is considered essential to the protection of the public; but on the other hand it is proposed to grant to the companies a right of appeal to a judicial tribunal if the Minister of Transport refused, upon their application, to put the machinery for revising rates in motion.

Wages and Working Conditions

It is proposed to provide by the bill for a permanent machinery to deal with the questions of railway wages and working conditions, and on the lines of the two boards which have been established temporarily by agreement, namely, the Central Wages Board consisting of equal numbers of managers and men with an appeal to the National Wages Board consisting of four managers, four men, and four users of the railway, with an impartial chairman.

Future Powers of the Government in Relation to Railways

It will be proposed to confer certain powers upon the state in relation to railways. These powers may be conveniently grouped under the following headings:

(a) For the protection of the public.

(b) For the economical operation of the railway systems of the country.

(c) To safeguard national interests.

(*a*) *For the protection of the public.*

(1) With regard to the protection of the public, the state would have the right to require adequate service and adequate facilities, including minor extensions in the geographical area which it is proposed to allot to each group company. A group company, should however, have a right of appeal to a tribunal to be prescribed if it contends that the requirement involves a capital expenditure which would seriously interfere with its finances.

(2) Subject to the same right of appeal, the state should have power to require alterations, improvements and additions necessary for public safety.

(*b*) *For the economical operation of the railway systems of the country.*

(1) In order to obtain the best standards of permanent way, rolling stock, plant, and equipment which are necessary to secure the financial returns to the groups and yet keep railway rates as low as possible, the state must (subject to a similar right of appeal by the companies) have power to impose such standards.

(2) The state ought to have the right to require co-operative working, including granting of running powers, common user of rolling stock, and facilities on equitable terms, the pooling of traffic and receipts where competition is causing waste, and the common user of workshop and manufacturing plant.

(3) In order that the public may know and the government be in a position to judge of the working of the railways, the ministry should have full power to prescribe the form of accounts, to regulate the manner in which they are compiled, and to require the compilation of such statistics and returns as are, in the opinion of the minister necessary, with a right to inspection.

(*c*) *To safeguard national interests.*

The railways should be required to submit for approval their proposals involving capital expenditure and also their plans for raising capital required.

It is necessary, in view of the fact, that the state is to provide machinery for adjusting rates intended to produce a certain net result, that the state should approve, and if necessary, have power to require, adequate reserves for depreciation and renewals to be made before dividends are issued. This again should be subject to a right of appeal to the prescribed tribunal.

Light Railways

It is proposed to exclude light railways from the grouping arrangements. Light railways must rely largely for their prosperity and development upon the good will and assistance of the main-line companies in whose district they lie. It is essential that the main-line companies should have no grounds for fearing competition from an ambitious light railway company, or combination of light railway companies. It should therefore be provided that where a group railway can prove to the satisfaction of the Ministry of Transport, that the light railway is changing in character, and is, in fact, becoming an ordinary railway, or is competing for main-line traffic, the group company may absorb

the light railway on fair terms, and make it a part of its own system.

In so far as traffic for which transport facilities are required justifies the provision of standard gage lines operating more or less under the same conditions as lines owned by main line companies, the Minister shall have power to insist that the group companies should provide the lines which are necessary. Different considerations apply to light railways i.e. lines of much lighter construction with less onerous conditions of operation attached to them, constructed wherever possible along the verge of roads, and subject to less stringent regulations than with regard to standard railways.

If this means of transport is to be developed for the benefit of agriculture and other industries, the state must encourage private enterprises or local authority enterprise, by some financial assistance in the construction and development of light railways throughout the country. The policy of grouping light railway systems so far as possible, as a means of securing economy in management, maintenance, repairs, etc., is considered wise, and experience has already shown that this can be done successfully.

It should be the policy of the ministry to stimulate the development of light railways constructed, equipped, and worked on the cheapest lines possible. It may be found that the present procedure under the Light Railway Acts, by which powers to construct light railways are sought and granted, may require to be modified.

Docks and Canals

The government has no present intention of altering the status of the dock undertakings of the country, but some of the temporary powers conferred upon the Minister of Transport by the Ministry of Transport Act, 1919, in connection with non-railway owned docks should, in their opinion, be retained and extended to railway owned docks.

The future of canals involves questions of great difficulty and complexity. The best advice available is being sought, and the whole subject is about to be investigated by a committee, which has been set up under the chairmanship of Neville Chamberlain, and pending the receipt of the report of this committee, the government feels that they are not in a position to formulate a policy.

From the above it will be seen that workers as well as shareholders are to be represented in the proposed scheme of the Minister of Transport, on the Board of Management by which each group will be controlled, the shareholders, which would include large traders, constituting a majority on the board, while administrative officials and workers on the railway are to constitute respectively one-third and two-thirds of the minority.

It is also noticeable that the financial side of the scheme does not sufficiently consider the interests of the shareholders. If the revenue of the company groups, shows an improvement on their pre-war return, the government is to take part of the surplus, and to devote it to the development of backward districts and the general encouragement of transport. If, on the other hand, there is a loss apparently the whole of it is to fall on the shoulders of the shareholders.

The Parliamentary Secretary to the Ministry of Transport Arthur Neal, M. P., in discussing Sir Eric Geddes' proposed scheme says, that "short of nationalization, which had been ruled out, and short of attempting to put back private ownership to exactly the same position it held before the war, he knew of no scheme which held out such possibilities or advantages to the country as did the present scheme." He further stated, "Railways, or any form of transport, must not be looked upon as a kind of charity."

However, it must remain to be seen whether Sir Eric Geddes' scheme is adopted or not, and this will not formulate until after the government has received the report of the Rates Advisory Committee, which is now studying the question of the raising of the railway rates and fares.

Disapproval of the scheme is fairly general throughout the commercial centers, and an important member of the London Chamber of Commerce stated, that he thought there was room for improvement in the handling of traffic, but he considered that the new scheme of the Minister of Transport would merely add greater confusion to a position, which is at present unsatisfactory to the whole trading community. The business men of London he pointed out, are so used to gradually improving and building up existing concerns, that through the experience gained during many years, they regard with great anxiety the drastic proposals foreshadowed by the Ministry of Transport, believing, that there will arise in consequence serious difficulties and delays which would be obviated by the continuance of the present systems of railway working on pre-war lines. He further stated, that he was of opinion that the railway systems should be given back their pre-war freedom, and the Ministry of Transport could watch and arrange for gradual improvements of the system, as circumstances opened up, from time to time. This opinion is also held by the greater majority of the trading community.

From the South African Railways and Harbours Magazine

Quite Trifling

"The Goods"—I know I cost you an awful lot, dear, but you can't say that my traveling expenses are very heavy.

(The Railway Administration contends that the cost of living is not materially affected by the railway charges on commodities.)

Watching the Performance of An Engine Terminal

The New York Central Plan for Checking Up the Efficiency of Every Locomotive Terminal

EVERY ONE REALIZES that an engine terminal is one of the most vital spots on the railroad, but it takes a first-hand knowledge of the actual time consumed by locomotives in terminals to bring us to a full appreciation of the tremendous import of terminal efficiency. That the performance of a terminal can be improved by additional mechanical facilities or a stronger operating personnel goes without saying, but the problem of the hour is that of getting better results with the facilities at hand. It is idle to talk about improving facilities until it is known that these are being utilized to the fullest extent. How much more readily would executives grant appropriations for terminal improvements if they could be assured that existing facilities were already being utilized to the utmost limit?

It may be said, then, that an accurate periodical statement of the performance of every engine terminal in terms of the time required to despatch locomotives in a satisfactory condition would be of the greatest value to operating and mechanical officers. These figures are not a novelty by any means. Several American railroads have attempted a statement of this character and for years preceding the war these statistics were compiled regularly in Germany. The Operating Statistics Section of the Railroad Administration and more recently the Interstate Commerce Commission have required some very detailed information on this subject, but each railroad has been left to its own devices with respect to utilizing these figures locally, and because the compilation of this report has proved an onerous task for many railroads. The practical use of this data as an index to individual terminal conditions has been attempted by very few railroads.

A Bit of History

It is perhaps due to the fact that a highly practical and economical method for obtaining an accurate account of the distribution of locomotive-hours eventually originated on the New York Central that a monthly report giving the time consumed by locomotives of each class at every terminal became a reality on that railroad. When, commencing in August, 1918, the Operating Statistics Section of the Railroad Administration called for a monthly report of the distribution of all locomotive-hours, the New York Central sought, as did many other railroads, to obtain this information through the mechanical and transportation departments, on whom was placed the responsibility for reporting the distribution of locomotive-hours within their respective jurisdiction. It was assumed that the mechanical department would secure a daily report from each engine terminal and that the transportation department could obtain the necessary data from the despatcher's train sheets. It will be recalled, however, that the summer of 1918 was not a propitious moment at which to saddle so elaborate a report on any department of a very busy railroad. Washington had demanded the figures, but proposed no practical means for obtaining them and doubtless more than one railway executive in those busy war days wondered if "the charge of the light brigade" was not to be enacted over again.

It was estimated that to furnish the required information on the New York Central alone would require at least two

NEW YORK CENTRAL RAILROAD

DISTRIBUTION OF LOCOMOTIVE HOURS

Division Hudson

Locomotive No. 3383

SERVICE. (Place X mark following service performed)

Passr.____ Freight X Switch____ Mixed____ Work____ Special____

	Time			Elapsed Time in Minutes (Not to be filled in)			
	Hr.	Min.	AM or PM	On Road or in Yard Switching Service (1)	At Terminals (2)	In Engine House: Mech. Dept. (3a)	In Engine House: Trans. Dept. (3b)
(A) Date 7-23-20 Available for Service	12	05	P				
(B) Date 7-23-20 Left Engine Terminal at Penn. (Point)	2	00	P				115
(C) Left Yard with Train 7-23-20	3	00	P		60		
(D) Arrived Final Terminal with Train	2	00	A	660			
(E) Date 7-24-20 Arr. Final Engine Terminal at West Albany (Point)	2	45	A		45		
(F) Date 7-24-20 Available for Service	2	00	P			675	

EXHIBIT A.

NEW YORK CENTRAL RAILROAD

DISTRIBUTION OF LOCOMOTIVE HOURS

Division Hudson

Locomotive No. 3383

SERVICE. (Place X mark following service performed)

Passr.____ Freight X Switch____ Mixed____ Work____ Special____

	Time			Elapsed Time in Minutes (Not to be filled in)			
	Hr.	Min.	AM or PM	On Road or in Yard Switching Service (1)	At Terminals (2)	In Engine House: Mech. Dept. (3a)	In Engine House: Trans. Dept. (3b)
(A) Date 7-24-20 Available for Service	2	00	P				
(B) Date____ Left Engine Terminal at West Albany (Point)							
(C) Left Yard with Train							
(D) Arrived Final Terminal with Train							
(E) Date____ Arr. Final Engine Terminal at (Point)							
(F) Date____ Available for Service							

EXHIBIT B.

Fig. 1. Locomotive Waybill Cards

and in some instances as high as ten extra clerks on each operating division. After compiling the report for two consecutive months it was found that, in addition to proving an expensive burden, the statistical results were far from authentic. It was then that the officer in charge of statistics for this railroad hit upon a plan that soon resulted in simplifying the compilation of this data and made this report a source of the most valuable information relating to each locomotive terminal.

Origin of the Locomotive Waybill

F. A. Hasbrouck, the originator of the plan, who had in mind a ticket which was attached to his automobile every time it was left at a garage and on which was recorded the time at which the car entered and left the garage felt a similar card could be designed to follow every locomotive, on which could be recorded the time at which the locomotive was available for service, and other events in sequence.

Fig. 1, exhibits *A* and *B* show the card or locomotive waybill, which may be considered as the foundation of this system.

The first entry on the waybill is made by the engine despatcher at the terminal from which the locomotive is to depart and states the time at which the locomotive is available for service. The second entry is made by the engineman and records the time that the locomotive left the terminal; that is, the time that the locomotive is delivered to the engineman. At this juncture the waybill is handed to the engineman, who later enters the time at which the train left the yard and retains the card until he reaches the destination of his run, when the time of arrival is entered. The time at which the locomotive arrives at the final engine terminal is then entered on the card, which subsequently goes into the hands of a designated employee at this terminal. The card is held here until this same locomotive is again ready for service. The time at which the engine is again ready for service constitutes the final entry on this card and is also used as an initial entry for the following card. Each succeeding card thus covers a complete cycle of locomotive events, as is shown in exhibit *A*, and carries an overlapping figure to insure the proper sequence of events as illustrated in exhibit *B*.

AVERAGE TIME - (BLANK) ENGINE TERMINAL

	Total dispatchments	In Enginehouse: Mech. dept. hrs. min.	Mech. dept. per cent	Trans. dept. hrs. min.	Trans. dept. per cent	Initial terminal delay hrs. min.	Initial terminal delay per cent	Final terminal delay hrs. min.	Final terminal delay per cent	On road hrs. min.	On road per cent
EAST DIVISION											
Passenger:											
Last month	609	5 06	39.9	1 16	9.9	1 31	11.9	- 32	4.2	4 21	34.1
This month	667	5 09	42.8	1 23	11.5	1 33	12.9	- 26	3.6	3 31	29.2
Freight											
Last month	438	8 43	39.6	2 58	13.5	2 17	10.4	- 51	3.9	7 11	32.6
This month	593	7 28	37.9	1 22	6.9	2 27	12.4	- 54	4.6	7 32	38.2
Switch:											
Last month	3	13 02	48.8	3 40	13.0	- --	----	- --	---	10 13	37.8
This month	12	1 25	8.3	4 49	28.1	- --	----	- --	---	10 53	63.6
Other											
Last month	3	3 03	17.3	1 50	10.4	- 50	4.7	2 05	11.5	5 52	55.8
This month	2	4 30	22.5	2 13	11.5	1 15	6.2	1 15	6.2	10 45	53.6
WEST DIVISION											
Passenger:											
Last month	577	4 12	43.5	1 12	12.4	1 28	15.2	- 28	4.8	2 20	24.1
This month	602	4 13	39.3	1 14	11.5	1 25	13.2	- 36	5.6	3 16	30.4
Freight:											
Last month	414	7 37	32.6	2 18	9.8	1 33	6.6	1 02	4.4	10 53	46.6
This month	566	7 08	31.7	1 48	8.0	1 25	6.3	1 06	4.9	11 04	49.1
Pusher freight											
Last month	89	3 20	14.0	1 51	7.8	- 46	3.2	- --	---	17 48	75.0
This month	203	3 42	15.4	- 54	3.7	- 47	3.3	- --	---	18 40	77.6
Switch.											
Last month	1633	3 48	15.5	3 33	14.5	- --	---	- --	---	17 10	70.0
This month	1385	4.06	17.6	3 24	14.7	- --	---	- --	---	15 40	67.7
Other											
Last month	44	9 53	26.6	16 13	43.7	- 47	2.1	- 17	0.8	9 57	26.8
This month	21	8 58	18.6	28 36	59.4	- 48	1.6	- 25	0.9	9 23	19.5

Fig. 2. Monthly Engine Terminal Report

Fundamental Advantages of the Plan

From the foregoing it will be noted that the figures which are to be used as a basis for the report are not only obtained directly at the source, but in such a manner as to avoid any additional clerical force. These are considerations of fundamental importance in connection with statistics of this character. To insure a complete report, the completed card waybills are first delivered to one of a number of checkers located at strategic terminals. These men have a tally sheet with a column for every locomotive operating within their territory, and it is their duty to see that an unbroken sequence of card waybills is submitted for every locomotive in active service. It is also their duty to see that a special monthly report submitted by the motive power department gives a full account of the number of hours that locomotives are held awaiting repairs and in the shops as well as stored. The figures reported by the motive power department are subject to check, as the total time acknowledged by this department must tally with the elapsed time as shown on the locomotive waybill cards issued just prior to and following the interval in the shop. The issuance of these waybills is discontinued during the time that the locomotive is held in the shop.

Having passed through the hands of the checker, the waybill cards are forwarded to the supervisor of statistics at the general offices in New York. Upon receipt of these cards the first operation is that of computing the elapsed time between each event as recorded on the waybill. This information is entered in the four right hand columns of the cards shown in exhibit *A*. This operation is accomplished by skilled computers with remarkable rapidity, as one clerk can ordinarily compute and enter the time on 400 or more cards within a seven-hour day. An additional computer can check the accuracy of these figures by noting if the total time as computed on each of these cards tallies with the total elapsed time between the initial and final entries on the card. When all the required figures have been entered on the card the work of summarizing these time intervals is greatly simplified by the use of mechanical tabulating machinery, although this method involves the perforation of a tabulating card for every waybill and is by no means essential to the successful operation of the system.

The Scope of the Report

The monthly report summarizing the time locomotives of each class are held at each terminal by the mechanical and transportation departments, respectively, is prepared for distribution within 15 days after the close of the month. The report embodies a separate statement for each important terminal, of which Fig. 2 is a typical example.

There are about 386 engine terminals on the New York Central, serving 5,646 miles of railroad. The report is printed does not include all of these, but the data available from which the performance of any one of these terminals can be quickly determined, or the performance of any group or even any individual locomotive by a process of mechanically sorting and tabulating the cards. The report as compiled goes to the operating and mechanical officers of each of the 24 operating divisions on the New York Central and to as many subordinate employes as request a copy. It will be noted by glancing at Fig. 2 that where two divisions are served by an important terminal the performance of the locomotives assigned to each division is shown separately, and it will be appreciated by those who have ever been a witness to the disputes that frequently arise between the officials of adjacent operating divisions over the relative

attention accorded their power in a common terminal that this report will settle very definitely any argument of this character.

Some idea of the scope of this work will be conveyed by the fact that from 60,000 to 70,000 despatchments per month are involved and that there are approximately 3,500 locomotives on the New York Central, of which about two-thirds are in active service. From eight to ten checkers stationed at various terminals are employed, while the force required in the general office in connection with this work hardly exceeds a dozen employees. The regular publication of a report of this character for over 2,000 locomotives in active service by almost any other method would require a small army of clerks; and if the information which is vital to the accuracy of the report were not obtained directly at the source and independent of any extraneous factors, the report could not be regarded as nearly so authentic.

Conclusions

The object in compiling this report originally was to comply with a request for a statement of the distribution of locomotive hours submitted to the Operating Statistics Section on Form OS4 (described in the *Railway Age* of January 3, 1919, page 47). Had there been no other objective to the work, this method would have doubtless recommended itself for its simplicity and efficiency, and on this ground it can be recommended to those railroads which have not as yet discovered any satisfactory plan for obtaining the information in regard to the distribution of locomotive-hours that is now being required by the Interstate Commerce Commission, in their order of Jan. 1, 1920.

The usefulness of this work, however, has by this time far transcended mere compliance with a request for certain data; it is rapidly becoming an important operating factor on the New York Central, and can be made equally valuable on any other railroad interested in the performance of its engine terminals and locomotives. An accurate statement of the facts concerning the distribution of locomotive-hours at each terminal should have an obvious effect on every division superintendent and master mechanic and it can hardly fail to prove a stimulus to roundhouse foremen and train despatchers if given the right sort of publicity.

Mr. Gompers Dissatisfied

SAMUEL GOMPERS, president of the American Federation of Labor, has issued a statement commenting on the award of the Railroad Labor Board as follows:

"Much has been said in the press about the estimated aggregate wage increase granted to the railroad men of the country by the railroad wage board. The figure, $600,000,000, is large and it sounds imposing and awesome. Most of us have no adequate idea of what so much money means or would look like.

"An entirely unfair impression gains ground by reason of this bulking of the issue. The honest method of applying the increase is to apply it to the individual. It is estimated that the average wage of a section worker, under the award, will be $101 per month, or less than $25 a week. The average wage of an engineer will be about $280 per month, or less than $70 per week. These are averages, so a great many hundreds of workers in these classifications will get less than the estimated average.

"The two classifications just cited are the highest paid and the lowest paid. In intermediate classifications are the firemen, the conductors and brakemen, the baggagemen, telegraphers, carpenters, car repairers, boiler makers, machinists, gang foremen and so-called unskilled workers. The standard of living that is possible for these classifications is not that which is possible to men doing like work in other industries. Consider the meaning of a wage of from less than $25 a week for section men, less than $45 for machinists, less than $39 for carpenters, less than $40 for telegraphers. Consider this in relation to cost of living figures just issued by the Department of Labor, which show that the index number for 22 listed basic commodities is today 269 in comparison to 100 in 1913.

"A sop has been thrown to each railroad worker under the operation of the Esch-Cummins law. Collectively they may feel themselves morally bound to accept it, but the whole theory of that act, whether as to wages, conditions of employment of the workers or the guaranteed dividends of the railroad companies, is an indictment against the Esch-Cummins law of which time will convict the authors.

"The railroad men are disappointed; and they have a right to be. The first test of the wage-making side of the Esch-Cummins act is to them as much of a disappointment as it well could have been. It is indicated that the railroad employees will not strike to enforce a fairer consideration of their needs, but it must not be forgotten that if the award had been so low as to compel consideration of other means of redress, the men could have struck only at the risk of injuring their own cause.

"There are other phases of the railroad situation equally serious. The country wants to know how this wage increase is to be met. The problem of how even to come this near to an adequate wage is one that is causing all manner of authorities and would-be authorities to gasp in amazement and to hunt for a solution.

"This whole clamor and speculation is an evidence of the intellectual bankruptcy of railroad statesmanship and of railroad operating genius. The railroad executives have the guarantee of the government that a 6 per cent dividend will be supplied by the government if it can not be earned by the roads. The situation need cause them no particular worry, the only question being one of how to best extract the required amount from the public. The whole consideration of the matter has thus far brought forth only two proposals —direct and indirect taxation. We are told that freight rates must be increased to meet the extra cost. If they are not increased the extra cost must be met by the government.

"It does not seem to have occurred to either the government or the railroads that it might be possible to increase railroad operating efficiency to a point that would eliminate the extra cost.

"I venture to say that it is possible to so increase the operating efficiency of the railroads as to not only afford a proper wage to the workers, but to also allow a proper return to railroad investors.

"First and foremost, the business of railroads is to carry the commerce and the people of the country and to provide for those engaged in railroading an adequate living according to American standards. American ability and ingenuity has come to a sorry pass if it must confess failure to put the railroads in condition to do that work in that manner.

"The question of ownership is not involved. The question is one of making the roads do what they were built to do and what they must do. The present condition and the present state of fright over the outlook is a terrific indictment of railroad executive brains. The audacity seems to have gone out of railroading. The fertility of imagination which made American railroads the greatest in the world has been sapped in the money markets. The ideals of achievement have been buried under the aspiration for stock jobbing.

"When the actual operating forces of our railroad systems were dethroned by the financial powers, railroading lost that vital spark that must return to life and virility if the problem is to be solved.

"Let operating brains be put to work and the solution of the railroad problem will be found. The answer is not in levying taxes. It is in real railroading."

New Priority Order for New England Coal

Coal Movement Generally Is Considerably Improved—Car Service Circulars

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION, Division 5, on July 26 issued Service Order No. 11, a new priority order intended to meet the coal requirements of New England, superseding Service Order No. 6, issued on June 19, which had been found ineffective for the purpose. The new order is similar to that issued for the benefit of lake coal and is based on plans and recommendations worked out by committees of railroad officers and coal operators and submitted to the commission. The order recites that the inhabitants of New England are in a large measure dependent upon bituminous coal, which to meet their requirements must be transported from mines in Pennsylvania, Maryland, West Virginia and Virginia to New England by rail and water at the rate of approximately 1,250,000 net tons each month and that the rate at which the coal has been transported to New England by rail and water has been short of the requirements by about 350,000 net tons each month.

The new order is much more specific than the former order, in that the required tonnage is apportioned between the various mines and priority is granted both in car supply and transportation for that tonnage via New York, Philadelphia, Baltimore and Norfolk to the extent determined to be necessary by the managers of the coal exchanges at the ports and an embargo is directed against the movement of other coal until the fixed requirements have been met.

Service Order No. 6 is rescinded effective August 2, which is the effective date of the new order, the important parts of which are as follows:

"It is further ordered, That effective August 2, 1920, and until the further order of the commission the common carriers hereinbefore described be, and they are hereby, authorized and directed to give preference and priority in the supply of cars for and in the transportation of bituminous coal in the following respects:

(1) To the extent determined to be necessary by J. W. Howe, who is hereby designated as agent of the commission therefor, to cause the transportation and consignment to the Tidewater Coal Exchange, Inc., New York, N. Y., for transshipment by water to New England as part of a pool or pools of tidewater coal as nearly as may be each calendar month the quantity of bituminous coal hereinafter designated namely: (a) 122,000 net tons of coal from coal fields served by The Pennsylvania Railroad Company east of Pittsburgh, Pa., (b) 5,000 net tons from coal fields served by The Monongahela Railway Company, (c) 84,000 net tons of coal from coal fields served by The Baltimore & Ohio Railroad Company on and east of its Connellsville and Monongah divisions including coal fields served by the Cumberland & Pennsylvania Railroad Company, (d) 20,000 net tons of coal from coal fields served by The New York Central Railroad Company in the State of Pennsylvania, and (e) 19,000 net tons of coal from coal fields served by The Western Maryland Railway Company.

(2) To the extent determined to be necessary by the said J. W. Howe, who is hereby designated as agent of the commission therefor, to cause the transportation and consignment to the Tidewater Coal Exchange, Inc., Philadelphia, Pa., for transshipment by water to New England as part of a pool or pools of tidewater coal as nearly as may be each calendar month the quantity of bituminous coal hereinafter designated, namely: (a) 50,000 net tons of coal from coal fields served by The Pennsylvania Railroad Company east of Pittsburgh, Pa., (b) 40,000 net tons of coal from coal fields served by The Baltimore & Ohio Railroad Company on and east of its Connellsville and Monongah divisions, including coal fields served by the Cumberland & Pennsylvania Railroad Company, (c) 5,000 net tons of coal from coal fields served by The Western Maryland Railway Company, and (d) 5,000 net tons of coal from coal fields served by The New York Central Railroad Company.

(3) To the extent determined to be necessary by the said J. W. Howe, who is hereby designated as agent of the commission therefor, to cause the transportation and consignment to the Tidewater Coal Exchange, Inc., Baltimore, Md., for transshipment by water to New England as part of a pool or pools of tidewater coal as nearly as may be each calendar month the quantity of bituminous coal hereinafter designated, namely: (a) 160,000 net tons of coal from coal fields served by The Baltimore & Ohio Railroad Company on and east of its Connellsville and Monongah divisions including coal fields served by The Cumberland & Pennsylvania Railroad Company, (b) 50,000 net tons of coal from coal fields served by The Pennsylvania Railroad Company east of Pittsburgh, Pa., and (c) 40,000 net tons of coal from coal fields served by The Western Maryland Railway Company.

(4) To the extent determined to be necessary by E. M. Graham, who is hereby designated as agent of the commission therefor, to cause the transportation and consignment to members of the Lamberts Point Coal Exchange, Norfolk, Va., at Lamberts Point, Norfolk, Va., whose coal is consigned to designated pools in care of said exchange, or to the Newport News Coal Exchange, Inc., Newport News, Va., at Newport News, Va., or to the Sewells Point Coal Exchange, Inc., Norfolk, Va., at Sewells Point, Norfolk, Va., for transshipment by water to New England as part of a pool or pools of tidewater coal as nearly as may be each calendar month the quantity of bituminous coal hereinafter designated, namely: (a) 360,000 net tons of coal from coal fields served by The Norfolk & Western Railway Company east of Welch and Jacobs Fork Branch Junction, W. Va., (b) 85,000 net tons of coal from coal fields served by The Chesapeake & Ohio Railway Company east of Huntington, W. Va., and (c) 185,000 net tons of coal from coal fields served by The Virginian Railway Company, and (d) 20,000 net tons of coal from coal fields served by Norton & Northern Railway.

"It is further ordered, That the common carriers hereinbefore described in the territory hereinbefore designated, be, and they are hereby, authorized and directed to place an embargo on the supply of cars for and the movement of all other bituminous coal in carloads to any other consignees or destination; *provided,* that this order shall not apply to cars furnished, placed or assigned under any order or direction heretofore or hereafter entered by the commission, and with respect to territory affected by Service Order No. 10 shall apply to each producer and shipper on each day only after said Service Order No. 10 has been complied with and not before, and *provided further,* that after a producer and shipper of bituminous coal, served by any of the said common carriers in said territories, has on any day shipped to any of the said coal exchanges as hereinbefore provided at any of the said ports a percentage (to be determined and announced for each coal producing district served by The Pennsylvania Railroad Company, The New York Central Railroad Company, The Baltimore & Ohio Railroad Company, Cumberland & Pennsylvania Railway Company, Philadelphia & Reading Railway Company, The Western Maryland Railway Company and Monongahela Railway Company, by the said J. W. Howe, who is hereby designated as agent of the commission therefor; and The Chesapeake & Ohio Railway Company, Norfolk & Western Railway Company, The Virginian Railway Company. The Interstate Railroad Company and Norton & Northern Railway, by the said E. M. Graham, who is hereby designated as agent of the commission therefor) of the total number of cars to which the producer and shipper is entitled on said day then this em-

bargo shall not apply to the said shipper for the remainder of the said day, and he shall be permitted during the remainder of the said day to ship the remainder of the cars to which he is entitled to any consignees and destinations he may desire, including the coal exchanges hereinbefore set forth and the said ports;

"It is further ordered, That bituminous coal in carloads consigned under this order in the manner hereinbefore set forth shall not be subject to reconsignment except upon a permit and direction therefor issued by the said respective agents of the commission, which permit and direction shall be issued by them only on a showing that the coal so to be reconsigned will go to a pool or pools at one of the ports hereinbefore referred to for New England;

"It is further ordered, That shippers having credits in a pool at any of the tidewater ports hereinbefore referred to, which credits have been obtained by the shipment into the said pool of coal consigned under this order, shall not be permitted to draw against the said credit and ship from the said pool to any destination except destinations in New England;

"It is further ordered, That the percentages hereinbefore referred to shall be subject to change from time to time by the said respective agents of the commission upon one day's notice to the carrier or carriers concerned;

"It is further ordered, That each of said common carriers by railroad shall establish such rules and regulations respecting the placement of cars for unloading and of vessels for loading at such piers as will effect the preference and priority in transportation hereby directed, including the dumping of cars."

Car Service Circulars

The Commssion on Car Service, in Circular CCS-62, has issued an explanation of the critical coal situation in eastern territory which occasioned the issue by the Interstate Commerce Commission of its Service Order No. 7 on June 19, 1920. The circular says the situation is thoroughly understood by all coal loading railroads in that section, but so that railroads not so directly concerned both east and west may more fully understand the problem which the eastern railroads face, the following facts are presented:

"The country's stocks of bituminous coal were very largely consumed last November and December during the pendency of the bituminous coal miners' strike. During that time the extraordinary requirements of the central west had to be met very largely by shipments from eastern territory, mainly from Pennsylvania and West Virginia. One consequence was the movement of an extraordinary number of eastern coal cars into the west. Many of these cars failed to return with reasonable promptness, and as a result the Interstate Com-Commerce Commission issued its Service Order No. 2.

"Production of bituminous coal during the winter, largely because of the aforementioned dislocation of coal-carrying equipment, was relatively greater west than east. While the production in the west may have permitted some replacement of private stocks during that period, this was not so in the east. The eastern territory opened the new coal year, April 1st, practically bare of stocks, and the eastern roads fully realized that extraordinary efforts were necessary if the required coal reserve for eastern consumers was to be built up.

"Plans were laid by the carriers late in March for an immediate increase in coal production. Labor troubles on the railroads made this program impossible of accomplishment. Since April 1 production of bituminous coal in the country as a whole has averaged about 9,000,000 tons per week, and that relatively greater in the west than in the east, whereas, if the situation before us is to be met, production during that period should have averaged not less than 11,500,000 tons per week.

"In consequence, we are at the present moment facing the necessity of making up at least 20,000,000 tons of lost bituminous production and building up reserves for the coming winter. One part of the program is the movement during the lake season of 30,000,000 tons of bituminous coal over Lake Erie docks for transshipment beyond the lakes. We are now dangerously far behind this program. Another item is a coal year program of 25,000,000 tons for New England, also far behind. Both of these necessitate record performance. It is well to point out further that many industries in the east have already been forced to suspend operations for lack of coal, and there have been instances where public utilities have ceased operation. At the present moment there are practically negligible stocks of bituminous coal ahead of many of the public utilities in some of the larger eastern cities, among which may be mentioned Boston, New York, Philadelphia, Baltimore, Washington, Cleveland and Detroit. Not the least of our troubles is the utter inability of many railroads to assemble reasonably protective fuel stocks; in fact, many roads have not yet succeeded in purchasing their coal requirements.

"This picture of the situation is presented to you, not with the thought that you are unmindful of the requests that have been made upon you, but rather that you may be in possession of additional information with which to meet protests which may be made by your patrons with respect to the action which has been taken to restrict the use of coal-carrying equipment for loading other commodities."

In Circular CCS-63 the Commission calls attention to the fact that the Geological Survey has no appropriation from the Federal Government which would permit it to undertake the assembling and reporting of statistics of coal production currently. "It is, under such circumstances, necessary that they rely upon the co-operation of the carriers through the American Railroad Association and the Commission on Car Service to keep the country advised currently with respect to the conditions of production of these important basic commodities. This is a valuable and patriotic service on the part of the carriers, and it is worthy of note that the final and accurate figures as assembled by the Survey indicate that the current estimates based upon the figures furnished by the railroads are within 2 per cent of accuracy. This record compares very favorably with any reports of production of basic commodities made by any of the Federal Government departments.

"In this same connection we would advise that the figures currently reported by the Geological Survey showing percentage of full time worked and lost by mines in the different producing districts will currently indicate a potential capacity of the mines somewhere between 900 and 950 million tons per annum. This is fully 75 per cent in excess of the country's maximum requirements, a point well borne in mind in considering the coal situation, especially as the excess thus disclosed above current annual requirements is greater than the excess indicated by present mine ratings."

Coal Production

Although unable to maintain as good a car supply for a six-day week as during the five-day week preceding, the railroads provided transportation sufficient to produce 10,969,000 tons of soft coal during the week ending July 17, according to the weekly bulletin of the Geological Survey. This was the largest output in any week since March 27, before the switchmen's strike began, and, except for that week, the largest since the middle of January. In comparison with the latest full time week, June 20 to 26, the output showed an increase of 413,000 tons, or 4 per cent. In five working days of Fourth of July week an average rate of production of 1,923,000 tons had been reached and the heavy black line of 1920 production on the chart published in the bulletin had crossed the dotted 1917 line. The lead thus established was maintained during the week of July 17, but the present rate is still far short of that of the summer of 1918.

Production during the first 169 days of the coal year has been 282,945,000 net tons, nearly 17,000,000 tons behind 1917 and nearly 31,000,000 tons behind 1918, but 44,750,000 tons ahead of 1919. Cumulative production of anthracite since January 1 now stands at 46,931,000 tons, an increase over the corresponding period of 1919 of 3,238,000. During the week ended July 10, the loss attributable to car shortage dropped from 35.3 to 23.7 per cent of full time.

Movement to the Lakes

Movement to the lakes during the week ended July 17 continued at about the same rate which has prevailed since Service Order No. 5 of the Interstate Commerce Commission became effective. The total tonnage of bituminous coal dumped at Lake Erie ports was 603,808. Total shipments from the beginning of the season to July 17 were 5,288,000 tons, compared with 10,374,000 tons in 1918 and 11,849,000 tons in 1919. The rail movement of bituminous coal to New England during the first three weeks of July has shown a marked increase over the general average and also over the corresponding period of 1919. The number of cars forwarded to New England destinations through five Hudson gateways during the week of July 17 is reported at 6,154, and the total for eight weeks beginning May 23 has been 36,108, as compared with 29,792 in the corresponding period of 1919.

The Interstate Commerce Commission on July 24 issued an amended copy of Service Order No. 10, the priority order for lake coal which was issued on July 20, providing that the order shall not apply to coal loaded in cars furnished, placed or assigned under any order or direction *heretofore* or hereafter entered by the commission. In the original issue of the order the word "hereinbefore" was used in place of "heretofore" and the effect would have been to abolish the assigned car rule.

The amount of coal necessary to keep the Northwest warm during the coming winter has been variously estimated at 20,000,000 to 28,000,000 tons, according to A. F. McGee, Minnesota state coal commissioner, who has been in Washington presenting the fuel situation in the Northwest and advocating the carrying out of the program providing for the movement of 4,000 cars daily to Lake Erie ports.

The publication of the Commission's priority order for lake coal has resulted in some dissatisfaction in other parts of the central west. For instance, at Cleveland, Ohio, the Retail Coal Dealers' Board of the Chamber of Commerce, through its executive committee, adopted a resolution requesting the directors of the Chamber to take immediate legal action to restrain the railroads affected by the ruling from enforcing its provisions. This action was taken on the grounds that "the carrying out of this order would make it practically impossible to purchase coal for consumption in Cleveland in such quantity as will protect that city against suffering during the coming winter."

President Wilson Interested

President Wilson, through Secretary Tumulty, on July 23, addressed a telegram to the governors of the New England states regarding the New England coal situation, saying that the President has kept in touch with the various departments handling this important matter and was able to state that as a result of these conferences, coal in sufficient quantities for the needs of that community will be delivered to New England. A similar telegram was sent to the governors of the Northwestern states depending largely upon lake coal.

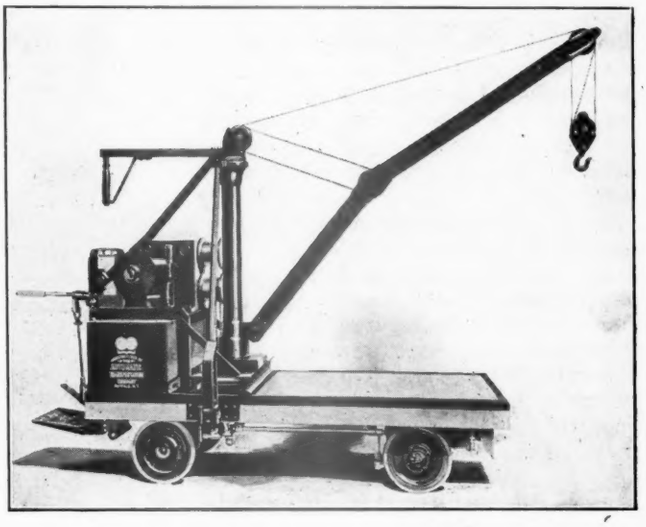
The Illinois Public Utilities Commission on July 23 resumed its hearings on the complaints of the Chicago Real Estate Board, which is endeavoring to obtain more coal for Chicago. Representatives of the various coal-carrying roads in the Chicago district testified before the board and presented car loading figures to show that the movement of coal into the Chicago district has exceeded the movement of this commodity in previous years and that, because of the reconsigning of coal to other points, only a small percentage of the total tonnage remains in Chicago.

The situation brought out by the hearings of the Illinois Public Utilities Commission has been further blackened by strikes of mine workers in the Illinois and Indiana fields. According to Examiner John Bowlun, of the state commission, all of the mines in the St. Louis (Mo.) district will soon be closed and miners are said to be leaving all of the larger mines in southern Illinois. Various estimates placing the number of strikers from 30,000 to 50,000, have been given to Mr. Bowlun. The estimated cut in production in Illinois has been approximately 100,000 tons daily. Government officials are watching the progress of this strike closely, however, and it is not unlikely that steps will be taken in the near future to insure the resumption of production.

Electric Crane Trucks

THE TRANSPORTATION ENGINEERING CORPORATION, New York, is offering its type "E" and "H" trucks, fitted with electric cranes of 1,000 and 3,000-lb. capacity. The 1,000-lb. cranes are furnished for hand or electric operation and are built in two different post heights —23-in. and 35⅛-in.—and over-all heights of 70-in. and 84¾-in. measured from the platform of the truck.

The 3,000-lb. electric crane is a recent development which has a compensating boom and is equipped with a swivel base so that the boom can swing through an angle of 180 deg. The hoist and boom control are driven through a worm gear by a motor which is the same size as the one used for driving the truck. The boom is raised and lowered and the hoist operated by conveniently located controllers. A clutch is so arranged that one control only can be used at a time.



Type "E" Truck Equipped with 3000-lb. Crane

The truck is equipped with portable side arms, which when lowered prevent the truck from tipping when a heavy load is lifted on either side of the truck. Effort has been made to mount the crane so as to take up as little platform space as possible, thus making the truck serviceable for load-carrying purposes. All moveable parts are bushed and provision is made for ample lubrication. The trucks manufactured by the Automatic Transportation Company, Buffalo, N. Y.

TODAY there are not enough cars and locomotives. The shortage of equipment is the direct cause of the existing troubles of manufacturers and merchants, and one of the reasons for the prevalence of abnormal prices. Yet there are persons who cannot or will not see that it is necessary to enable the railroads to put billions into their properties and that this financing cannot be accomplished without rates that will provide a margin of profit above operating expenses.—*Providence Journal.*

William K. Vanderbilt

WILLIAM KISSAM VANDERBILT, the head of the Vanderbilt family, died in Paris of heart disease on July 22, at the age of 70 years. Mr. Vanderbilt was better known here and abroad as a capitalist and sportsman, but he did have the advantage of a careful training in railroad work and as the head of the Vanderbilt family with its great financial interest in the New York Central and related Vanderbilt properties, he had a great influence in guiding American railway development.

William Kissam Vanderbilt was the second of the four sons of William H. Vanderbilt, and the grandson of Commodore Cornelius Vanderbilt, the founder of the Vanderbilt fortunes. He was born at New Dorp, Staten Island, N. Y., on December 12, 1849. He did not receive a college education, but studied under private tutors here and later in Geneva, Switzerland. It being the idea of his grandfather that he should have a thorough training in railway management, he was given a position at the age of 19 as a clerk in the office of C. C. Clarke, at that time treasurer of the Hudson River Railroad. He then worked up through the various grades on this and the combined New York Central & Hudson River until in 1877 he was elected second vice-president of the latter. He held this position until 1882 when he was elected president and chairman of the board of directors of the New York, Chicago & St. Louis, being in 1883 elected also chairman of the board of directors of the Lake Shore & Michigan Southern.

W. K. Vanderbilt

It may briefly be said that he was in charge of these two lines while his older brother, Cornelius, was in charge of the New York Central & Hudson River until he took over the management of his brother's interests, a short time before the latter's death. At any rate in 1898, he relinquished these positions and thereafter, for a number of years carried on his railway activities as a director in the several Vanderbilt railroad properties rather than as an actual railway man. It should, therefore, be noted that from September, 1899, on he was a director in the New York Central & Hudson River; the Lake Shore & Michigan Southern; the Michigan Central; the New York, Chicago & St. Louis; the Pittsburgh & Lake Erie; the Cleveland, Cincinnati, Chicago & St. Louis; the Lake Erie & Western; the Chicago, Indiana & Southern; the Chicago & North Western; the Rutland; the New York & Ottawa; the Chicago, St. Paul, Minneapolis & Omaha; the Lake Erie, Alliance & Wheeling; the Dunkirk, Allegheny Valley & Pittsburgh, and the New York & Harlem, these being the roads that were generally understood as forming what is known as the Vanderbilt system.

It has been said that since the time of Commodore Cornelius Vanderbilt, the Vanderbilts have been known as a family rather than by the name of a particular individual. In a similar way, it might also be added in reference to William K. Vanderbilt himself, that his career insofar as it relates to his railroad interests would more properly be treated as a history of the growth and expansion of the New York Central System during those years in which he was head of the family, rather than as a sketch of the work carried out by Mr. Vanderbilt, himself. Lack of space, however, prevents so elaborate a treatment of the subject as would be required to carry out that idea.

As noted above, the Vanderbilt fortunes were founded by Commodore Cornelius Vanderbilt who in 1810 established a ferry line between Staten Island and New York City. The Commodore in time went into shipping on a more extensive scale and operated boats from New York along the coast and to France. At the time of the gold rush he also established a line to California by way of Nicaragua. About 1853, the Commodore realized the opportunities to be gained in the then comparatively new method of transportation—railroads—and the great interest, which the Vanderbilts afterwards built up in railways was begun with an investment in shares of the property which has since become the New York Central Railroad. The investment which was thus started grew under the guiding hand of William H. Vanderbilt, son of the Commodore, then under that of Cornelius, oldest son of William H. and of William K, the second son.

Many interesting stories are told of the manner in which the two brothers worked together and many instances as reported of the manner in which the older brother was eager to rely on the ability and keen judgment of the younger. These characteristics were also brought out in the latter's management of the Lake Shore & Michigan Southern, particularly as shown in William K.'s choice of a practical railroad man as president and operating head of the road. This same policy was continued when William K. Vanderbilt became the head of the family in his choice of an operating man as president of the New York Central & Hudson River. Chauncey M. Depew had been president of that road under Cornelius Vanderbilt, but under William K. was chosen chairman of the board of directors, the position which he has held to this day.

Another of the important developments carried out under the lead of William K. Vanderbilt after his brother's death was the series of consolidations and absorptions which he brought about with the idea of bringing under closer management the many properties in which the Vanderbilts were interested. He thus put under the control of the New York Central, the Lake Shore & Michigan Southern and the Michigan Central, and consolidated with it the West Shore. He also decided in favor of a lease by the New York Central of the Boston & Albany, insuring the permanency of the Central's connection with Boston and New England. Through consolidating control of the Cleveland, Cincinnati, Chicago & St. Louis, and the Lake Erie & Western; and the building of railroads into the coal fields, he placed the

system in a stronger and more strategic position in the competitive territory immediately to the south of the New York Central and the Lake Shore Lines. He is also generally credited with being the man who enabled the New York Central to acquire the great area of land which has lately become of increasing importance and value—the Grand Central zone.

President A. H. Smith of the New York Central on July 24 issued a notice in which in part he expressed the following appreciation:

"Grandson of Commodore Cornelius Vanderbilt, first president of the New York Central, son of William H. Vanderbilt, the second president, he entered the railroad service in his early manhood. In 1877 he became vice-president, and for nearly fifty years he had faithfully served our companies as a director, with clear vision, keen intelligence, sound judgment and absolute integrity. He had guided the development, extension and consolidation of the New York Central lines. His great influence with his associates in these matters has been due to the recognition, not only of extraordinary ability and foresight, but to the universal recognition of his sense of the right thing to do.

"That sense of right regarded not only a particular corporation of which he was a director, but the interests of the state and the nation as well. In all matters affecting the interests and well being of the officers and employees of our company, justice and fairness guided his actions. We mourn his loss, we reverence his memory, not only because he was one of the great factors in the development of one of the greatest transportation systems in the world, and because he was one of the great builders of our nation, but because he had always been our true and loyal friend."

Handling Coal With a Monorail System

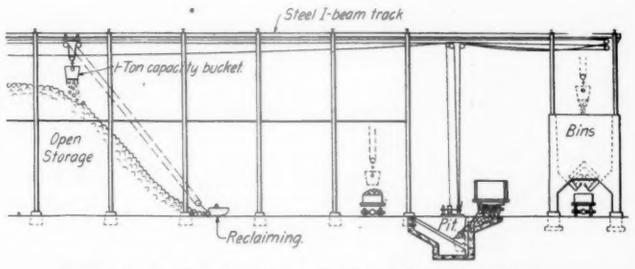
A METHOD OF HANDLING COAL has been developed which possesses considerable flexibility in application since it is adapted not only for the storage of railroad coal for winter use, but may be applied also to power plants and retail coal pockets. The scheme embodies two basic units, a track hopper pit and an overhead monorail system. The track hopper pit receives the

The Monorail Serving Individual Hoppers

coal from bottom dump cars while the monorail supports the bucket which transports the coal from the pit to the storage pile, coal pockets, or power-plant bunkers, or it serves for the reclaiming bucket whereby the coal is taken from the storage pile and loaded on cars, engine coal tenders or placed in coal pockets. The equipment is handled entirely by one man by means of a motor-driven hoist. The hoist is of a reversible, two-drum type and is regulated by clutches. One drum controls the backward and forward movement of the bucket and the other regulates the hoisting. The bucket ordinarily used is of one-ton capacity and embodies a special feature whereby an automatic latch releases the load only when the bucket comes in contact with the material pile. When reclaiming material from the pile, a clam shell bucket is used and operated in like manner.

Considerable latitude is allowed in the supports for the trolley track. These supports may be either of steel or wood at the option of the individual users. Provision is also made for the use of a cableway system in place of the monorail.

The operation of the conveyor system is simple, the operator being stationed close to the track hopper, where he can observe the filling of the coal bucket. The coal flows from



Suggested Application of the Monorail System

the hopper into the bucket through a chute which is under the control of the operator. The point of deposit of the contents of the bucket in the storage is also under the will of the operator, who can stop the bucket at any point in its travel along the monorail. The manufacturers make a point of the manner of dumping the bucket, since this takes place when the bucket is in contact with the pile. Hence the material falls gently with a minimum of breakage. When the bucket is raised from the pile after dumping, the latch is closed automatically so that the bucket is ready to receive another load.

This type of material handling equipment is known as the Godfrey Conveyor, and is manufactured by the Godfrey Conveyor Company, Elkhart, Ind.

COMPULSORY COMMON SENSE.—Women employed by the Pennsylvania Railroad in car cleaning and other outdoor work have received notice that the wearing of high-heeled shoes is disapproved. These women have also been reminded of the requirement that they wear the prescribed uniform.

Photo from Keystone View Company, N. Y.

Tank Cars on the Alsace-Lorraine System

General News Department

Employees in the machine and car shops on the Sante Fe system have agreed to work nine hours per day, instead of eight, beginning July 19, until the shortage of equipment is overcome.

The Chicago, Milwaukee & St. Paul car repair shops at Milwaukee, Wis., were destroyed by fire on July 18. The building was 600 ft. by 1,500 feet and the estimated loss is $250,000. More than 100 freight cars were also destroyed.

The Brotherhood of Railway Trainmen has issued a warning to members "on vacation" that they cannot hope to return to the organization except as novices. The statement reviews the "vacation" episode and affirms the opposition of the organization to the "rebel" movement.

Fines aggregating $240 and costs, for violation of smoke regulations, were imposed on the Baltimore & Ohio at Pittsburgh, Pa., on July 23. Cases brought by the city against the Pennsylvania were dismissed on payment of costs, and following an agreement with the law department of the railroad.

The Brooklyn Rapid Transit Co., New York City, operating subway and elevated lines in the boroughs of Brooklyn and Manhattan, will open two new lines between the two boroughs on August 1, the city having completed the tunnels beneath the East River at Sixtieth street and at Whitehall street. The new lines opened will aggregate a length of about seven miles.

The Cunard Terminal Company has been incorporated in New Jersey, with a capital of $40,000,000, to operate the freight terminals to be established by the Cunard Steamship Line in Weehawken, N. J., opposite 42nd street, New York City. The State of New Jersey has made further grants to this company of privileges on riparian lands. The plans of the company contemplate eight large warehouses on eight piers.

The Eastern Texas Railroad Company (headquarters at Lufkin, Texas) has been enjoined from removing or abandoning its tracks, the order having been granted on July 9 in the fifty-third district court. The suit was brought by the state of Texas. The defendant company, which is a part of the St. Louis Southwestern System, had filed an application for permission to abandon the property and remove the tracks.

The decennial celebration of the establishment of the United States Forest Products Laboratory at Madison, Wis., was held in that city on July 22 and 23, at which time an opportunity was offered to make a detailed inspection of the laboratory and of the work which it is doing. A program was also presented at which the work of the laboratory was reviewed and conferences held to promote the interests of forestry in this country. The celebration was in the general charge of Howard F. Weiss, former director of the laboratory, while those participating in the program included John Foley, forester, Pennsylvania System; Lieutenant-Colonel W. B. Greeley, forester, United States Forest Service, and Hon. Emanuel L. Phillip, governor of Wisconsin. In reviewing the work of the laboratory during the ten years since its creation, Carlisle P. Winslow, director, estimated that the results secured from the experimental work done to date are saving the industries of the United States $40,000,000 annually. This laboratory is supported jointly by the United States Forest Service and the University of Wisconsin.

Car Inspectors' Convention

The annual convention of the Chief Interchange Car Inspectors' and Car Foremen's Association, will be held at the Windsor Hotel, Montreal, Que., September 14, 15 and 16.

Railroad Administration Settles With Steamship Companies

The Railroad Administration has closed settlement with the Clyde Steamship Company for its compensation, depreciation, maintenance and all other claims arising from federal operation, including payment for the steamship Onondaga, lost in 1918. Settlement has also been closed with the Mallory Steamship Company, including the same items and payment for the steamship San Saba sunk by a German mine in 1918. The lump sum payment to both companies was $4,019,782, less previous payments on account.

Electric Railways Commission Preparing Report

The Federal Electric Railways Commission met in Washington last week in its final session for the purpose of formulating its report to the President. This report is supposed to include the suggestions of the commission as to what are the best solutions of the present-day problems of the electric railways and communities served by them. This commission has for more than a year been studying the electric railway problems of the United States. A comprehensive investigation was made for the commission by its executive secretary, Charlton Ogburn. This investigation chiefly dealt with the finances of the electric railways, their franchise relations, their traffic figures, their need of increased fares and possible economies of operation. All of the evidence gathered has been analyzed by Delos F. Wilcox, public utility expert of New York, for the benefit of the commission. It is expected that the commission's report will be made within a few days. The members of the commission are: Phillip H. Gadsden, Royal Meeker, Eugene Meyer, Louis B. Wehle, Charles E. Elmquist, Edwin F. Sweet, Charles W. Beall, William D. Mahon, and George L. Baker.

I. C. C. Trying to Lower Interest Rates

The Interstate Commerce Commission is making an effort to hold down the rate of interest which the railroads are required to pay in raising capital for equipment and additions and betterments. In its recent announcement regarding the proposed distribution of the $300,000,000 loan fund, the commission expressed the opinion that the contributions of private capital which it is endeavoring to have the railroads obtain to supplement loans from the government fund should be obtained at reasonable interest charges. Acting in conformity with the views thus expressed, the commission announced on July 22 that it had certified to the Secretary of the Treasury a number of loans to carriers contingent upon the respective carriers raising their contributions of capital at rates of interest varying from 6 to 7 per cent, depending upon the nature of the loan and the circumstances in each case. The commission has pending before it a number of applications with respect to which the applicants claim it is impossible to secure private capital necessary to match loans from the government, except at rates of interest substantially higher than those which the commission has thus far authorized in the certificates issued. A hearing was to be held before Division 4 of the commission at Washington this week.

Labor Organizes for Political Action

The National Campaign Committee of the 16 "associated recognized standard" railroad labor organizations has distributed a pamphlet containing instructions for executing their plan for rewarding their friends and defeating their enemies politically. The pamphlet tells how to start local campaign committees in each district to begin the work of organizing the locality for political action, with instructions to make a thorough canvass and interview all the voters,

with the object of ascertaining their attitude toward labor's political program. Whenever a voter is found who is friendly to labor's program he is to be asked to sign a card on which he promises to vote and try to get others to vote for labor's non-partisan political program and agrees to make a contribution to the expense of the campaign. After the local campaign committees have been organized the chairmen are to get into touch with each other and arrange for the organization of congressional campaign committees in each congressional district. The officers of the congressional committees are in turn to organize state committees for the purpose of working in connection with senatorial elections. The pamphlet expresses an expectation that labor will be able to assist in placing new faces in both houses of the National legislature.

Railroad Earnings for April and Four Months

The railroads of the United States in the month of April earned $29,604,417 less than their expenses and taxes, according to the compilation issued by the Interstate Commerce Commission. This record, shown in the large table, covers 188 Class I roads and 15 switching and terminal companies. The deficit for April compares with a net operating income in April, 1919, of $26,002,383. Operating revenues for the month were $401,604,695, an increase of $12,000,000; but the operating expenses, $404,480,142, show an increase of $60,000,000. The operating ratio for the month was 100.72 as compared with 88.52 in April, 1919. For the four months ended with April the report shows a net operating income of $37,063,134. As the government has been guaranteeing the roads during this period at the rate of about $75,000,000 a month, this represents a loss to the government for the four months of about $263,000,000, although there may be some adjustments in the maintenance accounts. The receipts for this period include approximately $50,000,000 back mail pay to be taken into the January accounts so that for this year's operations the railroads actually show a deficit. For the four months' period railway operating revenues increased $271,000,000, while the operating expenses increased $277,000,000; and taxes increased $17,000,000. For the corresponding four months of 1919 the net operating income was $64,926,926.

The largest loss in April was in the Eastern district, the railroads of which had a deficit of $24,000,000. The Southern roads had a net operating income of $1,598,000, and the Western roads showed a deficit of $7,200,000. For four months the Eastern roads had a deficit of $44,499,000, the Southern roads earned $30,013,000, and the Western roads earned $51,549,000.

Federal lap-over items settled during the month are included in the table for roads that have indicated that estimates were not included for substantially all unaudited corporate items. The war taxes of the corporations are included for March and April, 1920, only. In making comparison with the federal figures for 1919 it should be noted that in addition to war taxes the corporate figures for 1920 include some items classified principally under general expenses and hire of equipment, that did not enter into the accounting under federal control. The war taxes included in railway tax accruals for April, 1920, are: Eastern District, $1,034,225; Southern District, $457,742; Western District, $1,331,534; United States, $2,833,501; for four months of 1920: Eastern District $1,953,331; Southern District, $939,161; Western District, $2,730,203; United States, $5,622,695.

The Roadmasters' Convention

Plans are nearing completion for the annual convention of the Roadmasters & Maintenance of Way Association, which will be held in St. Louis, September 21-23. At a recent meeting of the executive committee of that association, the following program was arranged for:

TUESDAY

10 a. m. Convention called to order. Opening business, reading of minutes of last meeting, address of president, etc.

11 a. m. Committee report of The Economical Weights of Rail for Various Classes of Traffic, J. B. Baker, engineer maintenance of way, Central Region, Pennsylvania System, Cleveland, O., chairman.

2 p. m. Paper—"The Maintenance of Track Joints."

3.30 p. m. Committee report on "The Equation of Track Values," L. C. Ayers, assistant superintendent, Norfolk & Western, Crewe, Va., chairman.

7.30 p. m. Paper—"Methods of Increasing the Efficiency

RAILWAY REVENUES AND EXPENSES FOR APRIL AND FOUR MONTHS ENDING APRIL 30

	April				Four months			
	Amount		Per mile of road operated		Amount		Per mile of road operated	
Item	1920	1919	1920	1919	1920	1919	1920	1919
1. Average number miles operated	235,120.64	234,189.50	.....	.....	234,815.00	234,181.01	.....	.....
Revenues:								
2. Freight	$267,946,936	$265,675,547	$1,140	$1,134	$1,204,325,993	$1,042,105,545	$5,129	$4,450
3. Passenger	93,186.502	89,565,251	396	382	360,353,400	345,334,892	1,535	1,475
4. Mail	7,580,491	4,306,948	32	18	*85,361,413	17,120,811	363	73
5. Express	11,824,460	11,239,431	50	48	48,916,930	33,563,783	208	143
6. All other transportation	9,800,071	9,249,641	42	40	43,375,986	36,355,022	185	155
7. Incidental	10,860,857	9,071,818	46	39	43,801,739	40,074,743	186	171
8. Joint facility—Cr.	565,366	542,319	2	2	2,357,728	2,193,912	10	10
9. Joint facility—Dr.	159,988	163,684	.....	.....	750,828	653,851	3	3
10. Railway operating revenues	401,604,695	389,487,271	1,708	1,663	1,787,742,361	1,516,094,857	7,613	6,474
Expenses:								
11. Maintenance of way and structures	75,940,376	63,520,866	323	271	266,327,053	235,828,644	1,134	1,007
12. Maintenance of equipment	111,670,570	94,802,625	475	405	464,978,748	381,032,680	1,980	1,627
13. Traffic	5,121,415	4,027,826	22	17	20,076,888	14,082,071	86	63
14. Transportation	194,440,328	168,871,263	827	721	839,641,387	693,325,634	3,576	2,961
15. Miscellaneous operations	4,603,446	3,693,781	19	16	17,911,622	14,304,356	76	61
16. General	12,908,286	10,360,166	55	44	47,699,943	41,119,632	203	176
17. Transportation for investment—Cr.	204,279	505,920	1	2	1,109,080	2,051,971	5	9
18. Railway operating expenses	404,480,142	344,770,607	1,720	1,472	1,655,526,561	1,378,341,046	7,050	5,886
19. Net revenue from railway operations	†2,875,447	44,716,664	†12	191	132,215,800	137,753,811	563	588
20. Railway tax accruals	22,940,531	16,015,364	98	68	79,298,317	61,731,471	338	264
21. Uncollectible railway revenues	65,507	58,243	.....	.....	360,643	238,569	1	1
22. Railway operating income	†25,881,485	28,643,057	†110	123	52,556,840	75,783,771	224	323
23. Equipment rents (Dr. Bal.)	2,145,254	1,574,661	9	7	9,065,715	6,077,928	39	26
24. Joint facility rent (Dr. Bal.)	1,577,678	1,066,013	7	5	6,427,991	4,778,917	27	20
25. Net of items 22, 23 and 24	†29,604,417	26,002,383	†126	111	37,063,134	64,926,926	158	277
26. Per cent of expenses	100.72	88.52	.....	.....	92.60	90.91	.....	.....

*Includes approximately $50,000,000 back railway mail pay. §Credit items. †Deficit.

REVENUES AND EXPENSES OF RAILWAYS

FOR FIVE MONTHS OF CALENDAR YEAR, 1920

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses					Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of—Way and structures.	Maintenance of—Equipment.	Traffic.	Transportation.	General.	Total.					
Chicago & Alton	1,050	$7,039,099	$2,452,619	$10,669,533	$1,476,699	$3,005,999	$137,061	$5,011,701	$298,748	$9,991,054	93.64	$678,479	$329,047	$348,718	—$107,305
Chicago & Eastern Illinois	1,131	7,598,748	1,974,543	11,187,410	1,290,349	3,693,220	102,948	4,813,070	307,129	10,265,374	91.75	922,036	470,000	449,991	1,349,554
Chicago, Detroit & Can. Grd Trunk Jct.	62	455,826	74,891	639,781	72,054	133,426	5,704	325,278	15,895	552,316	86.32	87,464	21,934	65,511	—198,812
Chicago & Erie	269	3,489,092	304,033	4,268,170	461,862	807,125	64,812	2,379,136	141,519	3,873,095	90.74	395,074	198,636	196,118	—200,845
Chicago & North Western	8,154	38,024,180	13,610,652	58,977,889	8,612,402	13,981,062	437,740	29,678,091	1,500,946	54,744,090	92.82	4,233,799	3,300,621	928,192	—1,077,370
Chicago Great Western	1,496	5,866,016	2,115,169	9,088,601	1,880,834	2,331,020	143,636	4,382,259	258,607	9,078,733	99.89	9,867	306,429	—297,186	—428,360
Chicago, Indianapolis & Louisville	654	3,716,752	1,226,749	5,656,958	661,675	1,829,163	115,945	2,540,062	147,211	5,366,874	94.87	290,084	244,643	45,320	—497,641
Chicago Junction	12	.....	.....	1,244,618	249,504	299,465	1,439	1,216,344	45,852	1,812,604	145.63	—567,986	14,733	—582,719	—132,730
Chicago, Milwaukee & St. Paul	10,629	42,229,337	11,388,899	62,154,806	9,539,915	16,218,818	511,540	31,096,606	1,871,125	59,616,644	95.92	2,538,161	3,237,524	—724,739	—746,859
Chicago, Rock Island & Gulf	463	1,865,458	468,491	2,614,882	387,454	392,983	37,153	1,027,743	63,549	1,914,661	73.22	700,221	81,534	618,520	515,350
Chicago, Rock Island & Pacific	7,612	33,488,236	12,227,694	51,121,766	8,592,574	12,603,542	561,011	23,281,658	1,142,744	46,426,998	90.81	4,694,769	2,143,269	2,547,501	1,283,177
Chicago, St. Paul, Minneapolis & Omaha	1,749	7,850,025	3,140,013	12,213,376	1,280,691	2,285,347	114,163	5,731,642	355,601	7,833,554	64.13	2,379,822	643,076	1,734,244	669,917
Chicago, Terre Haute & Southeastern	374	1,742,703	118,503	1,923,130	283,004	702,373	21,043	840,230	53,710	1,908,080	99.21	15,049	94,500	—79,451	—116,669
Cincinnati, Indianapolis & Western	321	1,232,377	255,021	1,674,181	255,573	621,346	37,884	778,891	83,419	1,781,924	106.43	—107,742	64,717	—172,466	52,349
Cincinnati Northern	250	1,104,493	93,403	1,277,746	216,064	285,736	16,159	478,950	27,425	1,024,312	80.17	253,435	50,625	202,803	—6,522
Cleveland, Cinn., Chicago & St. Louis	2,408	22,313,904	6,934,267	33,208,257	3,596,868	7,177,744	473,651	13,529,278	642,036	25,659,624	77.26	7,548,633	1,060,815	6,484,030	2,455,170
Colorado & Wyoming	43	89,065	4,481	360,060	58,780	87,866	1,156	177,909	20,487	346,197	96.14	13,863	25,000	—11,137	—90,365
Colorado & Southern	1,099	4,066,649	980,686	5,688,663	869,124	1,399,782	49,700	1,997,573	199,954	4,553,311	80.04	1,035,352	281,354	752,792	15,092
Delaware & Hudson	858	11,873,164	1,191,579	13,996,379	1,583,055	4,606,162	117,398	7,377,066	620,758	14,414,426	102.98	—418,047	399,642	—818,128	—941,340
Delaware, Lackawanna & Western	956	17,984,447	4,660,097	26,539,971	3,135,805	6,565,605	358,140	13,940,936	665,181	25,662,768	94.43	1,477,203	1,743,750	—267,639	—4,692,267
Denver & Rio Grande	2,585	10,837,328	2,473,075	14,509,016	1,751,990	3,406,631	161,228	4,799,072	399,129	10,720,750	73.89	3,779,265	626,000	3,137,926	1,944,517
Denver & Salt Lake	255	717,819	117,608	890,649	313,558	421,757	4,087	589,700	37,912	1,367,014	153.48	—476,364	51,332	—527,764	7,683
Detroit & Mackinac	376	473,281	167,910	717,851	129,167	208,600	13,187	380,445	36,005	-767,044	106.85	—49,192	72,113	—121,304	37,807
Detroit, Grand Haven & Milwaukee	195	1,135,810	216,639	1,592,243	245,929	412,862	22,950	1,085,872	56,767	1,824,211	114.56	—231,968	16,848	—249,142	—399,453
Detroit, Toledo & Ironton	454	1,637,920	66,266	1,833,312	347,539	415,884	24,607	942,970	71,096	1,800,515	98.21	32,797	44,445	—12,447	353,078
Duluth & Iron Range	832	7,553,326	.....	8,805,920	813,529	543,068	3,201	757,075	82,430	1,830,250	94.16	113,356	104,579	8,346	—368,660
Duluth, Missabe & Northern	1,989	27,558,013	4,975,822	36,799,363	4,902,231	784,397	13,576	1,059,382	101,303	2,757,485	96.48	100,465	157,065	—56,633	—2,339,248
Duluth, South Shore & Atlantic	764	3,335,819	2,038,203	6,217,981	649,159	388,043	26,290	1,063,910	56,744	1,925,068	98.53	28,626	116,000	—87,469	—3,712
Duluth, Winnipeg & Pacific	88	183,231	340,379	549,744	66,341	197,867	15,734	466,143	43,460	859,657	87.84	118,922	52,204	66,717	5,022
El Paso & Southwestern	253	537,675	143,377	732,755	187,979	1,077,322	64,703	1,540,560	186,701	3,979,390	70.03	1,702,373	422,074	1,279,834	—402,118
Elgin, Joliet & Eastern	235	427,255	298,034	787,269	201,335	131,121	9,034	431,599	31,380	804,469	102.18	—17,200	18,925	—36,178	83,520
Erie	1,383	6,559,478	2,159,811	9,493,913	2,846,474	2,438,917	149,576	3,724,391	294,634	9,562,010	100.72	—68,097	339,279	—415,695	—1,632,519
Florida East Coast	13	.....	.....	516,747	133,954	12,279	1,611	187,345	11,329	420,991	81.46	95,750	75,600	20,150	28,904
Fonda, Johnstown & Gloversville	328	1,764,053	667,972	2,639,869	300,591	556,084	52,305	1,418,697	91,989	2,420,683	91.70	219,186	29,750	189,429	—339,131
Ft. Smith & Western	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ft. Worth & Rio Grande	350	4,226,669	976,244	5,759,656	578,547	1,741,208	76,420	2,814,697	192,540	5,437,197	94.40	322,460	233,527	89,039	—836,529
Galveston, Harrisburg & San Antonio	8,175	29,528,432	7,167,116	43,767,523	9,114,362	9,338,038	364,279	19,242,374	960,994	39,646,913	90.59	4,120,609	3,719,549	390,223	—1,398,611
Galveston Wharf Co	252	360,469	91,070	489,510	102,115	115,590	5,334	220,342	13,690	457,065	93.37	32,445	34,344	—1,899	—10,763
Georgia Railroad	307	838,167	223,346	1,176,490	302,691	277,120	24,517	480,758	57,618	1,144,923	97.31	31,567	56,988	—25,658	55,355
Grand Trunk Western	1,919	6,988,361	2,381,416	10,366,794	2,595,104	2,164,329	112,020	4,333,132	264,563	9,445,184	91.10	921,610	432,883	487,655	8,186
Great Northern	469	1,104,157	267,908	1,505,194	415,241	334,706	48,707	648,529	66,381	1,513,564	100.56	—8,370	65,955	—74,765	35,046
Green Bay & Western	3,502	4,309,435	487,634	5,094,238	625,329	1,777,893	50,425	2,039,220	140,635	4,635,433	90.99	460,804	338,431	122,373	442,087
Gulf & Ship Island	877	2,917,913	1,077,882	4,435,961	1,147,880	917,416	60,343	1,792,426	130,622	4,048,109	91.25	387,852	212,794	171,084	—41,577
Gulf, Colorado & Santa Fe	190	836,124	247,054	1,171,913	497,649	175,027	12,815	547,463	29,242	1,262,196	107.70	—90,283	42,445	—134,124	—273,158
Gulf, Mobile & Northern	4,799	38,773,757	10,233,309	54,600,326	9,100,395	14,372,090	498,068	23,018,975	1,220,055	48,650,564	89.10	5,950,262	2,849,405	3,092,648	1,936,098
Hocking Valley	24	340,906	.....	361,802	18,987	43,110	3,538	89,919	23,390	178,944	49.45	182,858	5,748	177,101	—52,343
Houston & Texas Central	120	.....	.....	2,957,347	611,149	633,290	11,934	2,080,176	90,267	3,426,816	115.87	—469,469	51,706	—521,322	—211,169
Houston, East & West Texas	1,159	4,863,207	1,289,690	6,845,583	1,625,478	1,760,763	90,500	3,744,963	228,202	7,466,150	109.06	—620,568	162,503	—786,878	—27,780
Illinois Central	176	1,507,990	241,906	1,840,465	317,726	744,358	12,967	724,475	61,283	1,860,808	101.10	—20,344	125,000	—145,347	—72,577
Illinois Terminal	272	480,812	81,967	613,626	228,963	209,064	14,678	327,054	46,187	825,946	134.60	—212,320	38,515	—250,884	27,434
Indiana Harbor Belt	465	493,262	104,957	665,747	300,339	224,236	14,977	378,931	49,059	967,541	145.33	—301,794	31,419	—333,541	—6,015
International & Great Northern	779	5,414,862	1,148,720	7,229,952	1,084,664	1,619,050	142,681	2,765,902	275,269	5,885,457	81.40	1,344,495	325,048	1,018,107	639,464
Kanawha & Michigan	741	3,394,716	306,825	3,983,474	540,943	1,139,061	75,012	1,777,403	121,542	3,652,855	91.70	330,619	205,001	125,179	283,944
Kansas City, Mexico & Orient	34	218,803	1,236	248,825	90,213	92,707	1,126	79,387	12,888	276,321	111.05	—27,496	22,589	—50,085	—80,514
Kansas City, Mexico & Orient of Texas	12	.....	1,150	494,617	73,759	140,226	.....	350,231	259	564,476	114.12	—69,859	29,319	—99,178	—85,560
Kansas City Southern	272	480,812	81,967	613,626	228,963	209,064	14,678	327,054	46,187	825,946	134.60	—212,320	38,515	—250,884	27,434
Lake Erie & Western	96	838,640	17,591	934,149	125,153	217,507	8,099	501,544	34,981	887,284	94.98	46,865	43,351	3,486	—112,615
Lake Superior & Ishpeming	230	1,643,490	11,247	1,724,326	206,874	387,012	31,114	632,813	62,112	1,317,757	76.42	406,569	66,129	340,440	159,945
Lake Terminal	1,435	20,120,948	2,618,071	25,058,606	4,064,645	7,962,530	276,482	14,999,183	596,243	28,006,315	111.77	—2,947,709	970,000	—3,918,832	—4,291,999
Lehigh & Hudson River	398	2,274,480	4,969,702	8,231,848	1,383,568	1,991,951	61,072	5,348,442	265,801	9,115,990	110.74	—884,141	512,956	—1,399,101	—2,003,033
Lehigh & New England	1,168	4,569,991	2,052,588	7,370,910	1,056,063	1,432,738	103,580	2,620,888	178,528	5,617,207	76.21	1,753,702	388,402	1,364,499	156,715
Lehigh Valley	302	1,384,519	250,369	1,721,606	306,741	228,600	22,647	558,995	38,875	1,154,470	67.05	567,136	83,379	483,643	524,238
Long Island	343	1,338,039	203,901	1,633,171	407,712	284,323	23,718	714,204	57,097	1,487,055	91.05	146,116	70,000	76,034	214,774
Los Angeles & Salt Lake	207	1,400,348	522,223	2,069,896	457,846	378,010	31,878	523,568	64,951	1,469,154	70.97	600,742	100,551	499,769	19,105
Louisiana & Arkansas	5,040	34,075,944	9,691,066	48,198,840	7,882,385	12,632,575	831,003	21,069,496	1,078,948	43,743,294	90.76	4,455,546	1,456,276	2,996,482	—1,089,390
Louisiana Ry. & Navigation Co	199	482,055	166,380	713,258	198,965	80,062	13,296	225,458	25,708	543,489	76.19	169,769	21,645	148,090	—46,034
Louisiana Western															
Louisville & Nashville															
Louisville, Henderson & St. Louis															

REVENUES AND EXPENSES OF RAILWAYS

FOR FIVE MONTHS OF CALENDAR YEAR, 1920—Continued

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Maine Central	1,216	$4,873,710	$1,718,618	$7,303,130	$1,544,435	$1,889,210	$52,752	$4,311,845	$211,568	$8,013,598	109.72	—$710,568	$452,708	—$1,163,327	—$408,642
Maryland, Delaware & Virginia	82	266,365	103,734	395,584	39,985	176,399	2,893	320,936	11,479	551,692	139.46	—156,109	10,000	—166,109	130,273
Michigan Central	1,862	19,844,597	7,612,703	31,377,212	3,823,924	7,914,834	333,031	13,998,439	598,991	27,179,907	86.62	4,197,305	1,239,500	2,954,211	—2,129,997
Mineral Range	101	261,653	1,513	272,681	70,103	92,280	1,472	149,898	5,595	319,347	117.11	—46,665	18,000	—64,665	—40,014
Minn. & St. Louis	1,646	4,701,799	1,083,355	6,305,423	918,818	1,689,312	81,731	3,172,470	173,765	6,037,858	95.75	267,565	282,544	—15,900	446,044
Minn., St. Paul & Sault Ste. Marie	4,243	11,232,217	3,049,432	16,122,546	2,796,793	3,406,404	171,831	7,875,319	443,373	14,785,712	91.71	1,336,834	1,394,747	—58,982	—1,112,751
Minnesota & International	194	358,598	146,589	545,691	107,916	95,101	2,446	269,144	18,396	493,003	90.34	52,688	28,599	24,086	44,620
Mississippi Central	164	248,899	101,193	384,778	145,116	155,101	9,814	218,215	40,305	568,531	147.75	—183,773	19,615	—203,550	—126,885
Missouri & North Arkansas	364	472,672	208,648	755,631	280,294	161,416	13,872	363,702	38,582	857,866	113.52	—102,236	30,161	—132,430	188,558
Missouri, Kansas & Texas	1,715	9,994,078	5,217,235	14,747,577	2,620,407	4,136,231	173,506	5,167,413	475,226	12,655,273	85.79	2,092,304	537,231	1,553,137	967,818
Missouri, Kansas & Texas of Texas	1,762	6,511,084	3,561,087	11,284,239	2,644,560	2,260,169	134,627	6,385,872	401,651	11,954,267	105.94	—670,029	297,810	—969,725	—837,330
Missouri, Oklahoma & Gulf	329	797,396	110,455	959,457	222,188	268,193	10,760	507,088	46,042	1,055,299	109.98	—95,842	59,066	—155,075	239,974
Missouri Pacific	7,299	31,204,866	7,988,711	44,167,860	8,778,662	9,769,265	614,415	18,336,877	1,198,031	38,918,270	88.11	5,249,590	1,218,651	4,016,393	3,112,805
Mobile & Ohio	1,076	5,842,561	905,565	7,386,258	1,233,478	2,284,537	146,172	3,385,070	227,970	7,281,669	98.58	104,589	301,956	—197,676	490,027
Monongahela	108	1,193,866	119,408	1,349,786	539,974	265,645	2,679	550,153	32,674	1,391,126	103.06	—41,340	28,879	—70,219	—349,536
Monongahela Connecting	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montour	56	379,683	6,714	1,263,918	124,976	184,834	2,798	570,399	31,642	914,649	72.36	349,268	14,881	334,387	443,191
Morgan's La. & Tex R. R. & S. S. Co.	400	2,875,452	863,320	401,206	113,017	228,277	5,737	167,022	36,398	560,098	139.60	—158,892	11,902	—170,794	—42,346
Nashville, Chattanooga & St. Louis	1,247	6,746,418	2,049,427	4,074,276	934,088	757,619	54,850	1,325,277	117,057	3,202,299	78.59	871,977	201,909	668,163	482,016
Nevada Northern	166	691,637	48,075	9,790,723	1,451,983	2,663,185	252,446	4,077,428	250,916	8,739,101	89.25	1,051,621	219,500	831,121	1,015,059
New Jersey & New York	47	63,891	386,270	768,425	138,795	134,832	4,500	206,640	23,046	508,511	56.17	259,913	41,337	218,576	66,080
New Orleans Great Northern	284	763,392	218,043	488,395	50,070	87,771	7,089	307,519	11,592	464,041	95.01	24,355	11,509	12,833	40,571
New Orleans, Texas & Mexico	191	711,160	196,603	1,026,204	212,265	222,384	17,398	417,383	46,347	917,986	89.45	108,218	58,453	49,727	56,075
N. Y. Central	6,069	73,239,024	33,210,085	963,360	256,536	191,761	20,131	326,473	39,305	834,255	86.59	129,105	58,500	70,521	52,537
New York, Chicago & St. Louis	574	9,220,957	129,150,093	17,248,989	32,906,284	1,214,835	64,755,151	3,395,694	121,698,872	94.23	7,451,221	5,033,034	2,403,488	—6,981,243	
New York, New Haven & Hartford	1,965	19,070,201	18,544,849	10,060,193	1,081,822	1,875,554	182,069	4,330,999	310,832	7,804,309	77.57	2,255,884	195,000	2,058,930	—115,822
New York, Ontario & Western	569	2,523,065	642,719	44,919,039	6,701,459	10,925,321	244,090	24,189,543	1,554,644	44,466,064	98.99	—452,975	1,695,000	—1,250,880	—1,917,545
New York, Susquehanna & Western	135	1,132,964	301,134	3,935,102	759,429	1,123,909	46,813	2,267,075	127,450	4,324,675	109.89	—389,573	127,283	—516,859	—700,847
Newburgh & South Shore	7	.....	.....	1,641,203	212,781	386,996	12,904	1,265,917	43,303	1,921,895	117.10	—280,692	109,283	—392,969	—320,949
Norfolk & Western	2,201	24,824,278	3,437,339	635,162	70,133	159,326	.....	418,783	21,561	669,804	105.45	—34,642	38,433	—73,075	—168,922
Norfolk Southern	905	2,248,601	722,058	30,300,435	4,685,192	10,572,147	250,767	12,569,574	681,397	28,901,891	95.38	1,398,544	1,845,000	—448,815	—4,298,508
Northern Pacific	6,655	30,215,224	7,413,256	3,241,996	9,244,118	8,380,412	55,958	1,528,981	133,407	2,965,397	91.46	276,599	81,998	193,968	282,079
Northwestern Pacific	538	1,368,484	950,271	42,405,531	566,031	374,671	386,352	17,181,591	1,056,166	36,849,911	86.89	5,555,619	3,539,334	2,009,999	—2,804,184
Oregon Short Line	2,348	12,830,280	2,796,810	2,679,491	2,089,207	2,860,792	25,813	1,203,284	75,434	2,257,169	84.23	422,322	128,012	293,850	216,846
Oregon-Washington R. R. & Nav. Co	2,223	8,992,321	2,682,239	17,413,008	2,050,079	2,195,174	134,241	5,373,828	573,041	11,367,861	65.28	6,045,147	1,260,798	4,783,618	2,164,980
Panhandle & Santa Fe	773	2,325,652	666,136	13,089,563	.....	.....	163,266	5,387,469	575,333	10,525,989	80.42	2,563,573	869,969	1,693,313	767,929
Peoria & Pekin Union	19	140,376	20,218	3,267,215	744,964	1,125,343	19,770	1,451,075	82,054	3,421,533	104.72	—154,317	102,181	—256,430	378,988
Pere Marquette	2,230	9,840,054	2,341,769	629,725	75,992	171,242	867	391,073	22,467	661,641	105.07	—31,916	47,500	—79,416	129,809
Perkiomen R. R.	41	394,697	46,277	14,030,405	1,894,069	3,491,695	192,853	7,105,038	486,057	13,222,046	94.24	808,359	320,557	486,526	—1,426,496
Philadelphia,, Bethlehem & New England	10	.....	.....	472,726	37,961	21,448	68	200,002	1,422	260,994	55.21	211,732	10,518	201,215	29,177
Philadelphia & Reading	1,126	27,908,607	4,118,904	487,204	78,474	80,815	2,177	371,879	7,702	541,047	111.05	—53,843	5,150	—58,993	—81,284
Pittsburgh & Lake Erie	224	8,876,442	1,150,335	34,188,619	3,405,211	4,823,962	236,293	17,020,593	797,017	31,257,135	91.42	2,931,484	760,778	2,168,964	3,045,239
Pittsburgh & Shawmut	103	612,280	26,307	10,946,097	2,138,268	153,019	87,295	4,411,448	273,019	11,748,339	107.32	—797,242	604,712	—1,402,414	—2,201,382
Pittsburgh & West Virginia	63	585,273	45,813	643,829	118,852	293,003	7,062	244,313	25,284	548,531	85.19	95,299	590	94,708	209,886
Pittsburgh, Shawmut & Northern	209	518,843	33,514	715,438	196,187	274,014	8,277	311,287	45,319	900,531	125.86	—185,092	71,663	—257,281	103,030
Port Reading	21	576,440	1,577,181	567,206	123,675	9,640	9,640	288,296	44,944	740,586	130.57	—173,381	9,439	—183,336	—21,224
Richmond, Fredericksburg & Potomac	117	2,158,461	528,579	771,441	78,966	61,715	98	462,315	6,225	609,318	78.98	162,122	32,772	129,351	—224,026
Rutland	415	1,165,752	185,551	4,726,083	391,221	744,142	36,349	1,867,017	122,674	3,201,816	67.74	1,524,267	145,220	1,378,876	—721,171
St. Joseph & Grand Island	238	969,054	862,223	2,109,863	410,300	582,367	23,992	1,130,881	69,204	2,224,988	105.45	115,125	92,985	—208,124	—90,758
St. Louis, Brownsville & Mexico	548	1,996,557	.....	1,267,078	329,703	205,465	10,231	679,660	62,435	1,297,401	102.39	—30,323	57,481	—87,842	35,825
St. Louis-San Francisco	4,757	23,706,408	9,160,657	3,096,838	662,649	510,676	45,572	1,090,790	114,041	2,419,355	78.12	677,483	56,500	619,863	57,896
St. Louis, San Francisco & Texas	134	563,952	842,619	54,974,331	5,157,265	7,892,990	296,544	14,391,401	1,021,699	28,706,796	82.07	6,267,536	1,130,218	5,131,857	1,167,511
St. Louis Southwestern	947	6,691,334	581,592	674,507	149,378	132,717	8,708	404,108	30,929	725,839	107.61	—51,331	9,400	—60,748	10,955
St. Louis Southwestern of Texas	807	2,611,851	438,242	8,004,634	1,072,153	1,478,464	175,994	2,100,795	217,788	5,069,499	63.33	2,935,135	250,051	2,684,943	1,943,258
San Antonio & Aransas Pass	736	1,134,208	198,405	3,562,751	1,092,009	1,195,177	67,369	2,023,285	145,805	4,522,106	126.92	—959,355	123,468	—1,083,161	—408,699
San Antonio, Uvalde & Gulf	317	370,484	4,121,612	1,792,254	590,022	497,332	31,749	1,027,051	91,080	2,236,093	124.76	—443,839	75,000	—519,108	13,150
Seaboard Air Line	3,563	13,661,611	.....	601,807	200,638	114,256	296,544	14,391,401	1,021,699	28,706,796	107.44	—44,818	11,000	—55,914	5,866
South Buffalo	11	291,395	.....	20,706,939	3,440,558	4,832,886	8,708	404,108	30,929	725,839	94.98	1,036,776	750,000	282,818	—370,328
South Buffalo	11	226,393	13,442,816	657,638	41,747	85,674	175,994	2,100,795	217,788	5,069,499	84.45	102,234	21,480	80,754	—3,538
Southern Ry.	6,976	40,174,512	.....	533,150	33,975	69,060	67,369	2,023,285	145,805	4,522,106	82.63	92,598	17,900	74,698	—22,665
Alabama Great Southern	313	2,935,986	880,676	60,972,417	7,995,323	11,197,891	31,749	1,027,051	91,080	2,236,093	79.21	12,670,167	1,982,015	10,680,479	8,062,739
Cincinnati, New Orleans & Tex. Pacific	338	5,500,472	1,528,600	4,195,032	456,957	1,013,586	86,380	1,554,892	100,865	3,243,304	77.31	951,728	151,929	799,324	361,634
Georgia Southern & Florida	402	1,359,449	660,428	7,730,699	874,239	2,020,211	131,468	2,797,594	175,143	6,062,140	78.41	1,668,559	254,496	1,413,026	509,711
New Orleans & Northeastern	207	2,120,640	500,055	2,250,160	302,297	487,488	35,328	1,035,525	56,732	1,927,970	85.68	322,191	92,750	228,247	172,282
Northern Alabama	110	522,662	69,893	2,991,070	442,377	631,695	52,256	1,153,615	73,588	2,374,814	79.39	616,256	198,262	417,581	465,742
				633,425	135,129	32,309	7,755	283,752	10,417	469,364	74.09	164,061	21,124	142,885	156,765

REVENUES AND EXPENSES OF RAILWAYS

FOR FIVE MONTHS OF CALENDAR YEAR, 1920—Continued

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.			
Southern Ry. in Mississippi	278	$455,723	$245,191	$785,813	$228,630	$122,019	$14,854	$425,931	$27,475	$818,909	104.21	—$33,096	$49,000	—$82,113	—$31,722
Southern Pacific	7,090	42,913,950	20,343,575	71,732,292	11,662,411	15,290,152	694,229	27,890,713	1,695,336	58,881,052	82.08	12,851,240	3,822,869	9,015,489	2,816,870
Southern Pacific S. S. Lines	...	2,140,228	88,668	2,325,380	85,897	1,902,064	57,345	2,309,936	125,174	4,480,416	192.67	—2,155,036	49,996	—2,205,032	—2,157,136
Spokane International	157	500,046	86,888	604,349	84,293	57,117	12,011	197,269	25,492	376,987	62.37	227,362	25,199	201,852	131,142
Spokane, Portland & Seattle	538	2,371,140	710,682	3,361,989	797,056	415,585	30,804	1,112,913	112,762	2,500,147	74.36	861,842	416,203	445,297	156,406
Staten Island Rapid Transit	25	372,828	377,432	825,659	145,033	179,781	5,981	512,759	46,857	890,411	107.84	—64,752	75,000	—139,923	—167,207
Tennessee Central	292	866,001	223,683	1,192,578	211,574	258,551	22,913	553,897	51,215	1,098,126	92.08	94,453	27,273	66,546	275,282
Texarkana & Ft. Smith	93	599,118	108,801	785,263	102,096	77,737	5,372	229,854	23,372	440,379	56.08	344,883	63,870	280,991	244,358
Texarkana & New Orleans	469	2,520,368	780,757	3,733,187	948,526	1,081,648	39,006	1,266,257	97,876	3,625,073	97.10	108,114	111,659	—8,903	—43,741
Texas & Pacific	1,946	9,612,698	4,814,875	15,903,277	2,967,413	3,487,169	181,472	6,973,802	439,303	14,256,466	89.64	1,646,810	586,600	1,056,661	230,425
Toledo & Ohio Central	476	3,506,090	315,918	4,050,901	558,780	1,322,003	48,107	1,998,125	100,810	4,043,263	99.81	7,638	187,411	—179,799	66,553
Toledo, Peoria & Western	247	420,150	249,356	749,920	118,570	174,451	11,034	401,177	37,209	742,441	99.00	7,479	42,500	—35,021	50,667
Toledo, St. Louis & Western	454	3,718,755	155,042	4,124,390	663,515	810,063	43,368	1,680,458	68,349	3,265,374	79.17	859,016	155,000	703,722	408,652
Trinity & Brazos Valley	368	594,302	97,130	739,680	345,688	233,598	9,917	354,264	40,979	984,446	133.09	—244,766	41,189	—286,063	—18,576
Ulster & Delaware	128	229,818	78,829	449,610	82,280	102,406	9,506	305,364	32,454	534,588	118.90	—84,978	25,000	—109,976	22,544
Union R. R. (of Pennsylvania)	40	.....	.....	3,312,894	373,648	953,767	1,397	2,206,569	38,746	3,574,126	107.88	—261,232	36,640	—297,872	—605,450
Union Pacific	3,614	32,163,940	7,869,221	46,475,328	6,523,927	8,767,449	310,029	14,032,262	1,376,185	32,136,724	69.14	14,338,604	2,031,635	12,304,338	804,870
Utah	98	708,142	3,489	713,770	70,372	143,392	925	166,584	12,611	393,883	55.18	319,887	22,289	297,598	143,670
Vicksburg, Shreveport & Pacific	171	1,151,055	460,815	1,773,222	218,288	299,538	31,086	672,069	52,813	1,292,364	72.88	480,858	64,878	415,832	291,263
Virginian	523	4,947,324	303,158	5,853,289	695,996	1,243,473	31,540	2,385,413	126,696	4,482,312	76.57	1,370,976	277,904	1,093,064	892,622
Wabash	2,472	14,031,581	3,913,175	20,319,582	3,644,713	5,894,655	376,123	10,913,395	693,679	21,659,683	106.60	—1,340,101	637,233	—1,979,395	—2,888,419
Western Maryland	754	5,958,227	406,253	6,876,736	1,241,207	2,477,588	169,560	2,746,376	225,577	6,925,401	100.71	—48,665	236,400	—285,065	140,476
Western Pacific	1,031	4,167,164	810,970	5,277,791	916,132	914,548	119,201	1,818,086	168,849	4,044,573	76.63	1,233,219	294,377	938,563	829,886
Western Ry. of Alabama	133	653,898	358,959	1,149,898	150,398	232,249	26,741	402,493	37,047	865,999	75.31	283,900	33,775	250,118	8,153
Wheeling & Lake Erie	511	4,811,892	304,556	5,629,132	844,381	1,452,807	56,843	2,514,020	140,071	5,024,941	89.26	604,191	323,900	278,992	391,463
Wichita Falls & Northwestern	328	767,355	234,357	1,079,723	281,096	173,886	6,505	563,887	62,870	1,088,243	100.78	—8,520	54,729	—63,515	42,626
Yazoo & Mississippi Valley	1,381	8,622,473	2,433,449	11,841,640	2,423,833	2,793,661	115,590	4,539,697	286,071	10,181,834	85.98	1,659,806	396,050	1,260,435	—206,503

of Maintenance of Way Forces," F. G. Jonah, chief engineer, St. Louis-San Francisco, St. Louis, Mo.

8.30 p. m. "The Americanization of Tony," and other moving pictures of maintenance forces engaged in track work; furnished by the Pennsylvania System.

9.15 p. m. Reception by members of the ladies' auxiliary

WEDNESDAY

9.30 a. m. Committee report on "The Relative Economy of Treated and Untreated Ties, the Various Kinds of Wood and the Treatment," W. F. Muff, roadmaster, Atchison, Topeka & Santa Fe, Newton, Kan., chairman.

11.30 a. m. Paper—"Where Are Our Ties Coming From?" Dr. Hermann von Schrenk, consulting timber engineer, St. Louis, Mo.

2 p. m. Committee report on "Supervision (including consideration of the proper length of roadmasters' or supervisors' territory, the supervision and training of foremen, etc."), W. Shea, general roadmaster, Chicago, Milwaukee & St. Paul, Chicago, chairman.

3.30 p. m. Committee report on "The Construction of Highway, Street and Farm Crossings," J. B. Martin, supervisor of track, New York Central, Elkhart, Ind., chairman.

4.30 p. m. Adjournment to inspect exhibit of the Track Supply Association.

6.30 p. m. Annual banquet.

THURSDAY

9.30 a. m. Committee report on "Relative Economy of Repairing Frogs, Switches and Crossings by Welding," M. Lipman, division engineer, Eastern Region, Pennsylvania System, Philadelphia, Pa., chairman.

11.00 a. m. Business session, including election of officers, selection of location for next convention, etc.

12.30 p. m. Adjournment.

Thursday afternoon will be spent in a tour of inspection of the railway terminals of St. Louis.

Track Supply Exhibit

The Track Supply Association will present its exhibit at the Hotel Statler, St. Louis, simultaneously with the convention of the Roadmasters' Association. It has already received about 50 applications for space and nearly all of the area available has been assigned, indicating that the exhibit will surpass those of previous years in the number of exhibitors, as well as in the educational character of the exhibits. Those who have reserved space to date are as follows:

Air Reduction Sales Company	New York City
American Hoist & Derrick Company	St. Paul, Minn.
American Steel & Wire Company	Chicago
American Valve & Meter Company	Cincinnati, Ohio
Anchor Company, The	New York City
Balkwill Manganese Crossing Co.	Cleveland, Ohio
Bethlehem Steel Co.	Philadelphia, Pa.
Buda Company	Chicago
Bucyrus Company	South Milwaukee, Wis.
Carbic Mfg. Company	Duluth, Minn.
Chamberlain, M. E.	St. Louis, Mo.
Chicago Malleable Castings Co.	Chicago
Chipman Chemical Engineering Co.	New York City
Crerar Adams & Co.	Chicago
Diamond State Fibre Company	Bridgeport, Pa.
Elliot Frog & Switch Company	East St. Louis, Ill.
Fairbanks, Morse & Co.	Chicago
Fairmont Gas Engine & Railway Motor Car Co.	Fairmont, Minn.
Hauck Mfg. Company	New York City
Hayes Track Appliance Company	Richmond, Ind
Ingersoll-Rand Company	New York City
Kalamazoo Railway Supply Co.	Kalamazoo, Mich.
Lundie Engineering Company	New York City
Maintenance Equipment Company	Chicago
Mudge & Company	Chicago
National Lock Washer Company	Newark, N. J.
Oxweld Railroad Service Company	Chicago
P. & M. Company	Chicago
Positive Rail Anchor Company	Marion, Ind.
Q. & C. Company	New York City
Rail Joint Company, The	New York City
Railroad Supply Company	Chicago
Railway Review	Chicago
Ramapo Iron Works	Hillburn, N. Y.
Reading Specialties Company	Reading, Pa.
Ruby, E. L.	Philadelphia, Pa.
Sellers Mfg. Company	Chicago
St. Louis Frog & Switch Company	St. Louis, Mo.
Simmons, Boardman Publishing Co.	New York City
Templeton, Kenly & Co., Ltd.	Chicago
Track Specialties Company	New York City
Union Switch & Signal Company	Swissvale, Pa.
Verona Tool Works	Pittsburgh, Pa.
Wharton, Jr., & Co., Inc., William	Easton, Pa.
Woolery Machine Co.	Minneapolis, Minn.
Wyoming Shovel Works	Wyoming, Pa.

Traffic News

The South Carolina Traffic Association has been formed by commercial interests of the principal cities in that state. Preliminary action was taken at Spartanburg on July 20.

M. C. Lysle has resigned as assistant traffic manager of the West Texas Chamber of Commerce to accept the position of traffic manager of the Phoenix Refining Co., with headquarters at Tulsa, Okla.

Grain doors on inbound carloads of grain are the property of the carrier and should be preserved, says a circular issued by the commission on car service. While the reclamation of these doors is well understood and protected at most of the larger grain markets, it appears that this is not true at all points, especially at smaller stations. Inasmuch as these grain doors are worth at the present price of lumber about two dollars each, the circular calls upon each road to check its practice in this respect to see that proper protection is being secured at all points.

A car supply 50 per cent of normal and a lack of efficiency in handling existing equipment are two factors that are expected to result in a serious handicap for the lumbermen throughout the Northwest unless some remedy is found immediately, according to testimony of lumbermen at a meeting of the West Coast Lumbermen's Association at Portland, Ore., on July 9. Orders for lumber were stated to be below normal and the car supply below orders, but the opinion was expressed that better handling of cars rather than more equipment is the big need for the present.

The Interstate Commerce Commission on July 27 suspended, until January 1, 1921, the provisions of Section 28 of the merchant marine act which provide that reduced export and import rates shall be allowed only on goods for shipment in American-owned vessels. The provisions were suspended at the request of the United States Shipping Board upon certification from it that adequate shipping facilities in vessels documented under the laws of the United States are not available. The provisions had previously been suspended for 90 days on an order of June 14.

The Board of Railway Commissioners for Canada, on July 23, ordered a reduction of more than 50 per cent in an application of the United States Ordnance District Salvage Board, New York, for relief in connection with a bill for demurrage amounting to $7,535, which accrued at Drummondville on 74 tank cars of United States Government ownership sent over the Canadian Pacific to remove a large quantity of acid in the plant of the Aetna Explosives Company. The board finds that in this case, although the cars were not wanted elsewhere, the full penalty rate was insisted upon by the railway, and declares the old blanket rate of $1 per day to be sufficient for the service rendered.

The Interstate Commerce Commission has issued a partial advance summary of traffic statistics for Class I steam roads for the month of May and five months ended with May, which is incomplete as it lacks returns from 24 roads, including several of the larger systems. For the roads reporting this shows that during the first five months of 1920 they handled 128,406,000,000 net ton miles of freight as compared with 108,526,000,000 during the corresponding period of 1919. For the month of May the net ton miles were 28,242,000,000 as compared with 24,067,000,000. The passenger service train miles show an increase for five months from 159,000,000,000 to 167,000,000,000 and for the month of May from 33,000,000,000 to 34,000,000,000.

The New York Central, carrying out its purpose to resist the order of the New York State Public Service Commission, second district, calling for a general reduction of passenger fares on September 1, has entered suit in the United States District Court, at New York City, to restrain the Public Service Commission from enforcing its order. The order applies to local fares between Albany and Buffalo, which, until the advance (to three cents a mile), was made by the United States Railroad Administration, under the War Act, had for many years been calculated on the uniform rate of two cents a mile. This rate, in the territory named, is specified in the charter under which the road is operated. The railroad company contended in court that under the Transportation Act of 1920 the order of the Public Service Commission was unconstitutional. That Act provides that rates which were made under Federal control are to continue in effect until changed by proper regulatory authorities; and it is argued that the Public Service Commission is not such an authority. On behalf of the Commission it was argued that the repeal of the Federal Act, to take effect September 1, automatically reinstates the former laws. The hearing was before Judges Ward, Hough and Cooper, and decision was reserved.

Livestock Shippers Ask Conference on Rates

Attorneys for the following organizations: National Live Stock Shippers' League, American National Live Stock Association, The National Wool Growers' Association, Corn Belt Meat Producers' Association, Cattle Raisers' Association of Texas, The Kansas State Live Stock Association, and American Farm Bureau Federation have petitioned the Interstate Commerce Commission for a conference to be attended by representatives of the commission, carriers and live stock organizations to agree upon some equitable plan of applying the rate increases requested by the carriers in Ex Parte No. 74. The following matters are suggested for specific consideration:

1. Maximum and the ratio of percentage increases.
2. Uniformity of shipping contracts.
3. Preservation of market differentials.
4. Adjustments to preserve relationships and to avoid discrimination, (a) between markets, and (b) between live stock and the products thereof.
5. Stocker and feeder rates.
6. Competitive state versus interstate rates.
7. Preservation and extension of the application of through rates.
8. Use of and charges for stock yards; feeding rules and charges; and such other rules pertaining to transportation as may be agreed to.

Petitioners point out that a similar request was previously contained in their brief, but that, due to the lack of knowledge of the amount of increase to be allowed, it was impracticable for these suggestions to be given previous consideration. The suggestion is made that in order to avoid postponing the effective date of the new tariffs or schedules, the livestock rates and rules may be made effective upon short notice immediately following the requested conference.

Freight Traffic Situation

The transportation situation as to coal is fully covered in an article elsewhere in this issue.

The freight traffic situation in the East remains unchanged. That is to say, progress is being made, all along the line, in relieving the congestion, but the total volume of freight moving continues so large that conditions are bettered only one notch at a time. Industries depending on bituminous coal get relief from day to day, but continue anxious because the measure of relief is so small.

General freight still requires very careful attention; and at Philadelphia, and other places, the Pennsylvania was forced last week to put out embargoes in various directions. These embargoes are not absolute, but in most cases are used as the readiest means of enforcing the permit system; the shipment of carload freight to congested terminals is only on permits which are granted after assurance that the cars can be disposed of promptly. In the South the movement of perishable freight has been attended with some difficulty. Watermelons have had to be carried in cattle cars. State and municipal road builders continue their complaints at the preference given to coal shippers; in the South they have secured little relief in the shape of flat bottom gondolas with low sides. In Georgia and Alabama the logging business suffers from lack of cars.

In the western wheat-growing states the 1920 bumper crop

is demanding more and more transportation facilities. In Kansas the situation has been reported as particularly acute, inasmuch as the state has comparatively little storage capacity. While some wheat has been moved in that state, the movement has been largely from local elevators and the wheat in storage is estimated at more than two and one-half million bushels. The remedial measures which have been taken by the federal and co-operative bodies have resulted in the movement of an increased number of grain cars into the western grain district. However, both railroad men and shippers complain that a large percentage of these cars are not grain tight and are therefore unfit for this traffic.

Extension of Marine Act Provision Asked

Admiral Benson, chairman of the Shipping Board, has announced that the board would further certify to the Interstate Commerce Commission, the desirability of extending until January 1, 1921, the period of suspension of the provision of Section 28 of the merchant marine act, which prevents American railroads from making preferential rail rates for commodities moving in import and export, except when moved in American ships.

In making the announcement Admiral Benson said: "The section of the act is in the interest of American commerce and shipping. Congress had in view that the movement of our commerce to and from any foreign port, should not be restricted, and so required the Shipping Board to authorize the commission to suspend the provisions of the section, if American shipping facilities were inadequate. The board has decided that the 90 days' suspension now in effect does not afford ample opportunity for proper inquiry into the subject.

The Increased Freight Rate in Canada

The full text of the application of the Railway Association of Canada to the Board of Railway Commissioners for an increase of 30 per cent in freight rates for all commodities, giving increased operation and wage charges as the reason, reads as follows:

The Railway Association of Canada, on behalf of the railway companies, members thereof, and of all other railway companies within the jurisdiction of the board, hereby applies to the board under the provisions of section 325 of the railway act, and such other sections thereof as may be applicable, for authority to make a general advance of 30 per cent in the tolls at present charged for the carriage of freight by the said companies. In the support of such application the applicant respectfully states:

1.—During the period since the outbreak of the war, the scale of expenditure of the said railway companies on capital maintenance and operating accounts has increased to an extent unprecedented and has greatly exceeded the aggregate increases in freight and passenger revenues granted during the period.

2.—As a concrete example of the great burdens under which the railway companies are laboring, reference may be made to the result of the wage increase granted in 1918. The so-called 25 per cent advance in freight rates, granted under order-in-council No. P. C 1863, effective August 12, 1918, was intended to reimburse the railway companies for the increased wage expense to which it was then estimated they would be put, through the application of the rates of wages and working conditions which had then recently been called the McAdoo award, and supplements thereto, and which had been made applicable to Canada by order-in-council No. P. C. 1768, effective August 1, 1918. Contrary to all expectations, such increase in revenue proved far from sufficient to accomplish the purpose for which it was intended. During the year 1919 the increase in wages granted as above mentioned amounted on Canadian railways to more than $80,000,000. Apart from this increase in wages, the prices of the principal supplies and materials in use on the railways, have increased more than 100 per cent since the beginning of the war period.

3.—In order that the railway companies may maintain their system in such a state of efficiency as to enable them to serve the interests of the public in a proper manner, it is essential that they be accorded an advance in tolls of at least the extent applied for herein.

4.—The increase in rates sought by this application is based entirely on present costs and does not take into consideration any increase in wages or costs which may occur hereafter.

Commission and Court News

Interstate Commerce Commission

The commission has suspended, from July 28 to November 25, the proposed cancellation of the existing fabrication-in-transit privilege at St. Louis of 1½ cents per 100 lb. on structural iron and steel originating at Chicago, Gary, or at points east thereof, and destined to Memphis, New Orleans, and certain other Mississippi Valley points, as published in a Missouri Pacific tariff.

The commission's attention having been directed to the fact that from time to time new passenger stations are opened for business, and that until fares are published to and from such new stations the only basis available is the fare to or from the next more distant point from which fares are published, and as the publication of specific rates to or from such new stations upon the authorized basis per mile applicable in the same territory usually results in reductions in charges, an order has been issued authorizing carriers to establish reduced fares to and from newly established stations on old lines, fares to and from which have heretofore been provided by use of the fare to or from the next more distant point, such fares to be based on distances in miles and fractions of a mile at the authorized rate per mile.

The Commission has issued an order authorizing the railroads in Central, Southeastern, Southwestern, Trunk Line and New England passenger association territories to establish and maintain until January 1, 1921, joint passenger fares that exceed the aggregates of the intermediate fares where such intermediate fares have been reduced to meet the fares of shorter lines or routes; provided that if the carriers desire to continue beyond January 1 any of such higher fares, they shall file applications for permission to do so with the commission on or before October 31. The commission has also granted an application of the carriers for permission to file on 10 days' notice reduced interline passenger fares which represent some reductions under the rates in effect as of March 1.

State Commissions

Delegations of farmers and business and professional men attended the hearing of the Minnesota Railroad and Warehouse Commission on July 17, on the question of abandoning the Duluth & Northern Minnesota between Knife River, Minn., and Finland, a distance of about 50 miles. The abandonment of the road, they declared, would delay settlement and development of this section for many years. The railroad company has asked permission to tear up the track, pleading that virtually all the timber has been cut and that there is no longer any use for the road.

Court News

Liability for Obstructing Flow of Stream by Bridge

The Indiana Appellate Court held that a railroad which partially filled open trestle approaches to a bridge over a natural water course, causing flood waters to wash away part of adjoining owner's land, was liable for the resulting damage. —Pittsburgh, C. C. & St. L. (Ind.) 125 N. E. 780.

Unexplained Breaking of Window in Passenger Car

In an action by a passenger for injuries caused by the unexplained breaking of a car window, where there was no evidence to show any defects in the glass or the apparatus holding it, it was held the passenger could not recover on the doctrine of res ipsa loquitur. The passenger's burden of proving the railroad's negligence does not shift, even where the maxim res ipsa loquitur applies, since the presumption is always rebuttable. McKinney v. New York, Westchester & Boston, 179 N. Y. Supp. 535.

Foreign Railway News

LONDON.

The Prussian-Hessian section of the German State railroads has decided to allow advertising on railroad lines, railroad stations, and in railroad cars.

Australian Railway Fares and Rates Increased

LONDON.

The Australian interstate railway passenger fares and freight rates have been increased by 14 per cent.

Japanese Expecting Railway Loans Here

Baron Takahashi, Japanese Minister of Finance, announced in the House of Peers on July 21, according to press despatches from Tokio, that a loan of 100,000,000 yen for the South Manchurian railroad probably would be floated in the United States in the near future.

Railway Construction in Bulgaria

LONDON.

The Board of Trade Journal says that the Bulgarian government has decided to accept the principle of giving concessions to private individuals for the construction of local lines instead of building them itself as was previously intended. In all there is about 380 miles to be constructed, and there is an urgent demand for rolling stock, rails, metal sleepers, etc.

German Railroad Employees Form a Union

LONDON.

In a meeting recently of representatives of all the railroad employees, with the exception of the Bavarians, it was decided to found a union of all German railroad employees. Already 350,000 members belong to this new organization. The resolution giving the board of directors the power to proclaim general strike in case of need is of special importance. Instead of sixty and more professional unions which are in existence now, the statutes of the new union allow for only nine professional organizations.

Bill to Electrify Japanese Roads

Cable advices from Tokyo under date of July 7, received in banking sources in New York, say that a bill has been introduced by the government in the Japanese Parliament, creating the Imperial Electric Railway Company. The aim of the bill is to establish electrical power supply for railroads and to convert steam railroads to electric. The capital will be 100,000,000 yen ($50,000,000), of which one-half will be invested by the government and its dividend will not exceed 10 per cent. In case insufficient profit is made to warrant the paying of six per cent, no dividends will be paid on stock owned by government, but will be applied for dividend on the privately owned stock.

Tenders Wanted for Steel Rails for Egypt

It is learned, writes Consul Hamilton C. Claiborne from London, England, under date of June 25, that the Surveyor-General of Egypt invites tenders for the supply of cut rails in accordance with specifications and conditions available at Survey Office, Giza. Contractors are invited to put in their offers for any quantity available for immediate delivery or for deliery during the current financial year. Tenders should show quantity, weight per yard, rate per ton of 1,000 kilos, period required for delivery, place of delivery, and any other details necessary. Tenders must be presented on or before March 1, 1921. The London agent of the Egyptian Government has been communicated with in respect of this matter, and it is understood that the tenders from American firms will be accepted and given equal opportunity with those of British firms, provided deliveries, qualities, and specfications are satisfactory.

Passenger Train Mileage in England

LONDON.

It is unofficially stated that the passenger train mileage for the period January 1 to April 25, 1920, is found to be equivalent to about 80 per cent of the mileage for the same period in the "boom" year, 1913. It is a figure which might be expected in view of the large increase in the percentage of locomotives under and awaiting repair. The slowing-up of passenger schedules permits trains being made heavier, thus giving increased carrying capacity.

The examination of the new mail line services which have come into operation on eleven of the British railways this month, shows an increase of 4 per cent as compared with the passenger train mileage on March 1, 1919. For the purpose of this calculation the additional passenger trains which have been allotted to local and suburban services have been excluded.

Electrification on London & South Western Postponed

The London & South Western railway has decided to postpone the electrification of a portion of its line between Cobham and Leatherhead to Guilford, as mentioned by the chairman at the general meeting in February last. This decision has been come to as a result of various circumstances which have arisen during the past three or four months, among which are the following:

(1) The abnormal increase in the cost of all material required for the electrical equipment of the permanent way and rolling stock.

(2) The refusal of the manufacturers to give firm quotations or to guarantee delivery within a reasonable period.

(3) The impossibility of raising fresh capital while the present uncertainty as to the future position of the railways continues.

Railway Construction in Australia

LONDON.

An article in the Times Engineering Supplement states that the acute shortage of steel and articles made from it is being emphasized by responsible officials in Australia. All the states are wanting new railways to open up inaccessible arable regions, and all the governments in Australia are promising them. There is a big program of railway construction in New South Wales alone, but the railway commissioners find it difficult to place orders for the requisite steel. The chief railway commissioner, Mr. Fraser, stated recently that he could not proceed with a certain line because he could not obtain the steel necessary to build a bridge required at one end of it. He mentioned that steel ordered in Great Britain before the war had not yet come to hand and that such steel plates as were being delivered were arriving only in very small quantities. He stated that the steel being made in New South Wales was not of the kind wanted for general railway construction.

A railway proposal estimated to cost $50,000,000 is before the Commonwealth Government. A group of influential West Australians have combined to promote the construction of a great developmental railway to connect the central and northern portions of Western Australia with the Northern Territory, and they also propose trans-Australian lines in Western Queensland and New South Wales. The idea is being favorably regarded by the Commonwealth government which is sending an expedition to investigate and report.

GOVERNMENT OPERATION has left the country with an insufficient number of cars and locomotives, and with an unusual proportion of the existing equipment out of order. There is to be a shortage of cars for a long time to come. It is well to know where responsibility for it chiefly lies. But the really important thing just now is to look ahead and make arrangements for the most efficient use of such cars as the country has in working order.—*Boston Transcript.*

Equipment and Supplies

Locomotives

THE CENTRAL PILAR (Cuba) will have 1 locomotive built by the Baldwin Locomotive Works.

THE CENTRAL ADELA (Cuba) will have 1 locomotive built at the Baldwin Locomotive Works.

THE CENTRAL JOSEFITA (Cuba) will have 1 locomotive built by the Baldwin Locomotive Works.

THE CENTRAL ARAUJO (Cuba) will have 1 locomotive built by the Baldwin Locomotive Works.

THE CENTRAL CESPEDES (Cuba) will have 1 locomotive built by the Baldwin Locomotive Works.

THE CENTRAL ESTRELLA (Cuba) will have 1 locomotive built by the Baldwin Locomotive Works.

THE CENTRAL LA FRANCIA (Cuba) will have 2 locomotives built by the Baldwin Locomotive Works.

THE CUBA CANE SUGAR CORPORATION, 123 Front street, New York, has ordered two locomotives from the Baldwin Locomotive Works.

THE CORDOBA CENTRAL (Argentina) has ordered 15 Mikado locomotives from the American Locomotive Company. These locomotives will have 21½ x 24 in. cylinders, and a total weight in working order of 163,000 lb.

THE HAVANA CENTRAL, reported in the *Railway Age* of July 23 as being in the market for 10 Consolidation type locomotives, has ordered this equipment and two extra tenders from the American Locomotive Company. The locomotive will have 18 x 24 in. cylinder, and a total weight in working order of 126,000 lb.

THE CHICAGO & NORTH WESTERN, reported in the *Railway Age* of June 25 as inquiring for 20 Pacific and 50 Mikado locomotives, has ordered 20 Pacific and 30 Mikado type locomotives from the American Locomotive Company. The Pacific locomotives will have 25 x 28 in. cylinders, and a total weight in working order of 264,000 lb.; the Mikado locomotives will have 27 x 32 in. cylinders, and a total weight in working order of 302,000 lb.

Freight Cars

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is inquiring for 200 flat cars.

THE TEXAS COMPANY, Houston, Tex., is inquiring for 2 all-steel box cars.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for 100 draft sill reinforcements.

THE KATANGA RAILWAY (Africa) is inquiring for 12 cattle cars of 15 tons' capacity.

THE BOUGHTON & HARLAN COMPANY, Chana, Ill., is inquiring for three or four box cars.

THE CHESAPEAKE & OHIO is inquiring for 200 hopper car bodies of 57½ tons' capacity.

THE LOW-MOOR IRON COMPANY OF VIRGINIA, Low Moor, Va., is inquiring for from 3 to 10 coke cars.

THE CUYAMEL FRUIT CO., New Orleans, La., is inquiring for 50 cane cars, 50 banana cars and 20 box cars.

THE OTIS STEEL COMPANY, Cleveland, Ohio, is inquiring for 10, 70-ton gondola and 10, 50-ton hopper cars.

THE CHICAGO, MILWAUKEE & ST. PAUL contemplates contracting the repair of 100 box cars and 1,000 gondola cars.

THE CARNEGIE STEEL COMPANY, Pittsburgh, Pa., has ordered 20, 75-ton flat cars from the Standard Steel Car Company.

THE PUBLIC SERVICE CORPORATION OF NEW JERSEY has ordered 1,000, 55-ton hopper cars from the Standard Steel Car Company.

THE ROGERS-BROWN IRON COMPANY, Buffalo, N. Y., has ordered 4, 55-ton hopper cars from the Pressed Steel Car Company.

PETER P. BECK, 22 Thames street, New York, is in the market for from 50 to 100 second-hand hopper cars of 50 tons' capacity.

NEW JERSEY ZINC COMPANY, New York, reported in the *Railway Age* of July 16 as being in the market for 45, 55-ton hopper cars, has ordered this equipment from the Pressed Steel Car Company.

THE BRIER HILL STEEL COMPANY, Youngstown, Ohio, reported in the *Railway Age* of July 2 as inquiring for 50 to 100, 70-ton hopper cars, has ordered 100 of these cars from the Pressed Steel Car Company.

THE ATCHISON, TOPEKA & SANTA FE was reported in the *Railway Age* of March 26 as having ordered 1,500 refrigerator cars from the American Car & Foundry Company. Later and more complete information is to the effect that this item was incorrect. The order in question was for 2,500 refrigerator cars, divided equally between the Haskell & Barker Car Company and the American Car & Foundry Company.

Iron and Steel

MITSUI & COMPANY, 65 Broadway, New York, is inquiring for 3,500 tons of 80-lb. rail for the Tientsin-Pukow Railway.

Miscellaneous

THE H. R. MACMILLAN EXPORT COMPANY, LIMITED, British Columbia, has received an order for 4,000,000 feet of creosoted ties from the Government of India.

Signaling

THE LEHIGH VALLEY has ordered from the General Railway Signal Company, Rochester, N. Y., an interlocking machine, with 31 working levers, to be installed by the railroad company's forces at State Line, N. Y.

Railway Construction

TEXAS & PACIFIC.—Improvements are under way on the joint track, with the Missouri, Kansas & Texas, between Ft. Worth, Tex., and Whitesboro, which will involve an expenditure of $1,000,000. Included in the improvements are the lengthening of passing tracks, the strengthening of bridges, the replacing of 75-lb. rails with 85-lb. rails, and the replacement of wooden trestles with permanent waterway openings.

WICHITA FALLS, RANGER & FT. WORTH.—This company has completed its line into Breckenridge, Tex., the first train arriving in that city on June 27.

WICHITA FALLS SOUTHERN.—This road is under contract to build into Breckenridge, Tex., from the north, within the next six months.

SHIPBUILDING SCHOOLS will be opened in all large shipyards in the vicinity of Philadelphia to train young men who wish to enter the shipbuilding industry, according to the announcement of C. S. King, Philadelphia manager of the Atlantic Coast Shipbuilders' Association, which is backing the project.

THE TRUTH IS that our lines, as a result of years of oppression and attack by public bodies, are in a dangerous condition, and this condition has become chronic. It is necessary first of all to give them an entirely new income footing and this can be done only through additions to rates.—*Journal of Commerce and Commercial Bulletin, New York.*

Supply Trade News

W. B. Curtiss has been appointed assistant to George E. Emmons, vice-president in charge of manufacturing of the General Electric Company. Mr. Curtiss will act as the personal assistant to Mr. Emmons in matters pertaining to production in the factories of the company, including the plant in Schenectady.

James A. Galligan, sales agent for Pickands, Brown & Co., Chicago, has been appointed sales manager and assistant to Vice-President C. D. Caldwell, of the By-Products Coke Corporation, Chicago. Mr. Galligan served as district coke representative in the middle west under the United States Fuel Administration.

B. B. Milner, now engineer of motive power and rolling stock of New York Central, has completed arrangements for becoming associated with the Oriental organization of Frazar & Co., 30 Church street, New York, and will sail for his new headquarters in the Tokio, Japan, offices of Sale & Frazar, Ltd., some time this fall.

Lesley C. Paul, formerly editorial representative of the Electric Railway Journal, is now connected with the publicity department of the **Westinghouse Electric & Manufacturing Company** as technical editor in charge of railway publicity. Mr. Paul has for five years been connected with the McGraw-Hill Company in circulation and editorial work and for the past three years he has been on the editorial staff of the Electric Railway Journal in the New York and Chicago offices. He is a graduate of the engineering course of the University of Colorado, 1915.

A large interest in the **Youngstown Steel Car Company,** Youngstown, O., has been acquired by the **Youngstown Sheet & Tube Company,** and the **Brier Hill Steel Company,** both of Youngstown. The plant represents an investment of about $1,000,000 and will be used chiefly for repair work. It is intended to later erect additional works for the building of steel cars complete and plans have been outlined for a plant to cost at least $5,000,000. These plans for the development of the company have been worked out by James A. Campbell, president of the Sheet & Tube Company and by W. A. Thomas, director and member of the executive committee and former president of the Brier Hill Company.

Edward B. Ellicott, formerly colonel in the chemical warfare service of the A. E. F., has become associated with **A. M. Castle & Co.,** iron and steel merchants, Chicago, as chief engineer. In addition to his being in charge of the erection of the new plant of A. M. Castle & Co., at Seattle, Wash., and buildings to be erected in Chicago, he will be engaged in the operating and manufacturing activities of the company and associated interests. Previous to entering the service, Mr. Ellicott was city electrician of Chicago for 8 years and chief electrical engineer of the Sanitary District of Chicago for 11 years. During a leave of absence from his duties in this city and at the request of exposition officials he was chief chemical and electrical engineer of the Louisiana Purchase Exposition at St. Louis, Mo.

The Bourne-Fuller Company, Cleveland, Ohio, and the **Upson Nut Company**, Cleveland, Ohio, have effected a consolidation under the name of the Bourne-Fuller Company, Cleveland, Ohio. The ownership and management of these companies has been identical for the past eight years. The Upson Nut Company plants will continue operation as the Upson Works of the Bourne-Fuller Company, the product of its nut and bolt departments being marketed under the same trade-marks as in the past. The officers of the company are: **B. F. Bourne**, chairman of the board of directors; **H. A. Fuller,** vice-chairman of the board of directors; **R. S. Hall,** president; **L. H. Elliott,** vice-president and treasurer; **F. K. Moore,** vice-president; **F. H. Chapin,** vice-president; **W. A. Hitchcock,** vice-president; **F. H. Ulmer**, secretary and auditor; **J. W. Morna,** cashier; **J. E. Stanton,** assistant auditor; **V. M. Nader,** assistant auditor; **W. J. Fleming,** manager of sales, and **H. C. Graham,** assistant manager of sales, nut and bolt department.

Harry R. Warnock, general superintendent of motive power of the Chicago, Milwaukee & St. Paul, has become associated with the **Standard Stoker Company,** New York, as vice-president in charge of the mechanical department, with headquarters at New York. Mr. Warnock was born at Newcastle, Pa., on July 16, 1870. He began railway work as a freight brakeman with the Pennsylvania Lines West of Pittsburgh in June, 1889, and later in the same year went to the Pittsburgh & Lake Erie as a brakeman. In September, 1891, he was promoted to locomotive fireman and later was locomotive engineer, which position he held until May, 1900. From that date until July, 1904, he served consecutively as engine despatcher, roundhouse foreman, and general foreman, resigning on the latter date to become master mechanic of the West Side Belt with headquarters at Pittsburgh, Pa., where he remained until October, 1905, when he became master mechanic of the Monongahela Railroad. He remained in this position until September, 1913, when he was appointed superintendent of motive power of the Western Maryland. On December 15, 1917, he was appointed general superintendent of motive power of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago.

Complaint Against Pittsburgh Basing Point Dismissed

The Federal Trade Commission has announced the dismissal of the application filed by the Western Association of Rolled Steel Consumers, et al, for the issuance of a formal complaint against the United States Steel Corporation, et al. This case, known as the "Pittsburgh Basing Point for Steel Prices" case, was dismissed by vote of three to two commissioners; Commissioners Murdock, Colver and Gaskill voting for dismissal, and Commissioners Thompson and Pollard voting against dismissal.

In its study and determination of the case the Commission held numerous public hearings, received the testimony of many witnesses, considered briefs filed by opposing counsel and heard oral argument for and against the application.

The application was filed by fabricators or manufacturers of finished steel products in the Chicago, Duluth, and Birmingham districts against producers of steel. They advanced the proposition that the practice of the steel manufacturers in fixing the price of steel, which is made and used at such centers as Chicago, Duluth, and Birmingham, upon the price f. o. b., mill at Pittsburgh, plus the freight rate from Pittsburgh to such centers, operates as a discrimination in price in favor of Pittsburgh fabricators as against fabricators in Chicago, Duluth and Birmingham districts, in violation of Section 2, of the Clayton anti-trust act, and also was an unfair method of competition in violation of Section 5 of the Federal Trade Commission act.

Car Heating Decision—A Correction

In the June 12 issue of the *Daily Railway Age*, page 1754, appeared a statement regarding a decree entered in a suit by the Vapor Car Heating Company against the Good Car Heating & Lighting Company, which concluded as follows: "By reason of this decision, the Gold Car Heating & Lighting Company may continue to make and sell its vapor valve and its vapor system of heating railway cars without infringing any of the patents of the Vapor Car Heating Company." Examination of the full decree of the United States District Court for the Southern District of New York in this case indicates that the above statement is not strictly correct and may be misleading.

The Vapor Car Heating Company brought suit against the Gold Car Heating & Lighting Company under several patents, including No. 758,436, only three claims of which were in issue. The only vapor device passed on by the court was the Gold No. 1112 vapor valve. The decision of the court was that this valve infringes all three of the claims sued on,

but that those three claims were too broad to be sustained. This decision will be appealed for review by the United States Circuit Court of Appeals.

In the same case the court held that some of the Gold Car Heating & Lighting Company's convertible systems, including its Excelsior Vapor valve used in connection with these equipments, infringes valid claims of patents of the Vapor Car Heating Company and the court enjoined the further manufacture, use, sale or offer for sale of such infringing convertible systems, referring the case to a Master in Chancery for an accounting for all damages suffered by the Vapor Car Heating Company. This decision does not affect the convertible system now being furnished by the Gold Car Heating & Lighting Company.

The court also held that the Gold platform operating device for end train pipe valves infringes valid patent rights owned by the Vapor Car Heating Company, and enjoined the Gold Company from further manufacturing, using or selling such devices, within the life of the patent, which expires in October, 1921. Both of these injunctions are now in full force.

Obituary

Jacob W. Paul founder of the Verona Tool Works, Pittsburgh, Pa. died at his home at Oakmont, Pa. on July 21, on the eve of his 91st birthday. Mr. Paul founded the Verona Tool Works in 1873 and was president at the time of his retirement, 30 years ago, when he was succeeded by his son, Harry S. Paul.

M. Sergey Friede, head of the importing and exporting firm of **M. S. Friede,** 120 Broadway, New York, an authority on Russia and until recently one of the leading figures in Russian-American trade, died suddenly at Aix-les-Bains, France, on July 20. Mr. Friede was born in Russia in 1861. He was educated in the government schools there, at the Russian Engineers Polytechnic Institute and later at the University of Zurich, Switzerland. During the 30 odd years in which he engaged in developing trade between Russia and America Mr. Friede traveled widely in European and Asiatic Russia and did considerable in trying to arouse interest in this country in trade with Russia. He did no small business in exporting railway supplies to that country especially, and had a great deal to do with the building of the Trans-Siberian railway when it was under construction in the way of furnishing materials, particularly ties, for that work.

Trade Publications

AEROIL KEROSENE BURNERS.—An eight-page illustrated bulletin known as No. 12 has been recently published by the Aeroil Burner Company, Union Hill, N. J., describing the line of Aeroil kerosene burners adapted for the melting of tar, pitch, asphalt, etc. Complete data and price lists are given for the various sizes, as well as photographs of actual installations.

LUITWIELER NON-PULSATING PUMPS.—The Luitwieler Pumping Engine Company, Rochester, N. Y., has recently issued a series of 12 to 18-page illustrated bulletins devoted to the various styles of pumps, etc., manufactured by this company. Automatic electric and hydro-pneumatic pressure water systems are described in addition to considerable data on sizes, capacities, tests and results.

NIAGARA CONOIDAL FANS.—The Buffalo Forge Company, Buffalo, N. Y., has recently issued a large size, 52-page illustrated catalogue known as No. 421, which is devoted to the line of conoidal fans manufactured by this company. Complete tables are given regarding sizes, capacities and pressures, etc., and are accompanied by illustrations and working drawings, showing actual installations.

COALING STATIONS.—The Roberts & Schaefer Company, Chicago, has recently issued two folders directing attention to the distinctive features of the coaling stations constructed for the railroads by that company. One of these illustrates various types of reinforced concrete station structures; the other is a pictorial exposition of the mechanical features of these stations, including the hoisting machinery, automatic tram cars, undercut coaling gates, R. and S. gravity sand plants, etc.

MANGANESE CROSSINGS.—The Balkwill Manganese Crossing Company, Cleveland, Ohio, has issued its 1920 supplement No. 1 to the standardized specifications for manganese crossings which were issued in 1919. It contains a number of drawings of crossings which have been designed since the original specifications were issued, adapting the articulated form of cast-manganese construction to crossing designs.

THERMIT PIPE WELDING.—The Metal & Thermit Corporation, New York, has recently issued a 24-page illustrated booklet on the welding of pipe by the thermit process. The text is descriptive of the methods employed from the preparation of the ends of the pipe to the pouring of the thermit metal or superheated liquid steel. The photographs illustrate the text and also show results of strength tests.

TRANSFORMERS.—Miniature catalogue 4-A-1, giving a complete list of distribution transformers with list prices, has just been issued by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Distributed-shell, rectangular-core. and simple-shell construction with auxiliary apparatus has been outlined clearly. Single-phase, 25 and 60 cycle and three-phase 60 cycle transformers oil-insulated and self-cooled, with their voltage ratings are listed and the standardization of distribution transformers by various associations is discussed.

DRIVING BOX WEDGE.—The operation and construction of the Franklin automatic adjustable driving box wedge, which is claimed to maintain wedge adjustment under all conditions and increase the life of crown bearings and rod bushings, is described fully in a four-page pamphlet, bulletin No. 601, distributed by the Franklin Railway Supply Company, New York. Instructions are also given for applying the wedge on new and existing power and a drawing is included showing its proportions and the space that should be provided for wedges when designing new engines.

SUPERHEATED STEAM IN YARD ENGINES.—Bulletin No. 10, published by the Locomotive Superheater Company, New York, presents data obtained in tests made of two engines in switching service, one using superheated steam and the other saturated. Three classes of switching work were included in the test. An indicator was used and careful readings were taken, the results showing decidedly superior performance for the superheater locomotive over that using saturated steam. Detailed information of the tests is given in the pamphlet and a comparison of the performance of both locomotives is given in tabular form.

BOLT, NUT AND RIVET MACHINERY.—A complete line of equipment for the manufacture of bolts and nuts is described in catalogue No. 20, issued by the Acme Machinery Company, Cleveland, Ohio. The machines include single and multiple bolt cutters with or without power feed and lead screws, special staybolt cutters, bolt pointers, nut tappers, nut burring machines, nut machines, bolt machines and upsetting and forging machines. The Acme die head manufactured by this company is also described and instructions are given for making or recutting dies. A set of tables of data pertaining to screw threads, bolts, nuts and rivets is included.

TURRET LATHE PRACTICE.—A reference book on vertical turret lathe practice in railroad shops has been issued by the Bullard Machine Tool Company, Bridgeport, Conn. The book contains 43 pages, 9 in. by 11 in., and is well illustrated. Detailed illustrations and descriptions of methods of tooling pistons, packing rings, air pump cylinders and rings, cylinder heads, crossheads, rod brasses, driving boxes, eccentrics and straps, throttle boxes, crankpin washers, engine truck centers, etc., are given. The book is extremely valuable as a reference for quick, efficient methods of setting up these locomotive parts and performing necessary machine operations.

BEARINGS AND THEIR LUBRICATION.—The Vacuum Oil Company, New York, has published a 32-page pamphlet which contains an extended discussion of the lubrication of various forms of bearings. The subject is introduced by illustrating and describing the more common forms of bearings used on various types of machinery. This is followed by a brief description of the usual method of applying the lubrication either directly or through distributing systems. Space is also given to the general discussion of lubrication in relation to the quality of oil; and the latter part of the publication is devoted to considerations affecting the selection of oil for any given purpose.

Railway Financial News

ARKANSAS & LOUISIANA MIDLAND.—The highest combination bid offered at the receiver's sale of this road on June 8 provided for the operation of the line between Monroe, La., and Bastrop, and the junking of that portion of the line north of Bastrop, including the branch to Hamburg, Ark. Prior to this, on May 26, the court ordered abandonment of operation of that portion of the line north of Bastrop. These bids were set aside for another tendered at a hearing on July 5, by the Frost-Whited interests of Shreveport, La., calling for the operation of the line between Monroe, La., and Crossett, Ark. In connection therewith it is reported that the prospective owners contemplate an extension north of Crossett to Pine Bluff, Ark.; the construction of a connection from Monroe, La., to the Tremont & Gulf at Eros, La.; the purchase or use of the Winnfield branch of the Louisiana Railway & Navigation Company, and the inauguration of through trains to and from New Orleans, La. The order of July 5 gave the purchasers 60 days from that time in which to complete their arrangements, but on the petition of the owners and receivers the court modified the order on July 18, restricting the time given the purchasers to July 31.

ATCHISON, TOPEKA & SANTA FE.—The Interstate Commerce Commission has authorized this company to continue, in accordance with the indenture dated June 1, 1910, between petitioner and the Guaranty Trust Company of New York, the issuance of its common stock in an additional amount not exceeding $9,243,000 out of the remaining duly authorized and unissued shares of the 436,860 shares reserved for the purpose in exchange for and against the surrender and cancellation of an equal amount in par value per share at the time of conversion of its 50-year 4 per cent convertible gold bonds, issue of 1920, at any time before June 1, 1923.

BIRMINGHAM & SOUTHEASTERN.—This road, operating between Union Springs, Ala., and Eclectic, 48 miles, was placed in the hands of receivers on July 26 by order of Judge Henry D. Clayton, of the United States District Court at Montgomery, Ala. The action was taken on petition of the Atlanta & West Point Railroad.

CANADIAN PACIFIC.—See Edmonton, Dunvegan & British Columbia.

CENTRAL OF GEORGIA.—The Interstate Commerce Commission has authorized this company to guarantee the principal and interest of $1,000,000 of 5 per cent, first mortgage, 30-year bonds of the Ocean Steamship Company of Savannah issued under the first mortgage dated July 1, 1890, due July 1, 1920, but extended by agreement for five years to July 1, 1925, with interest at 7 per cent.

EDMONTON, DUNVEGAN & BRITISH COLUMBIA.—This road, according to a press despatch from Edmonton, Alberta, is to be operated by the Canadian Pacific for a period of five years, with an option to purchase the line at any time within that period, a contract having been made to that effect last week. The road extends from Edmonton northward into the Peace River country, operating about 600 miles. The winter timetable, as printed in the Official Guide for July, shows a train running twice a week, each way, over the main line and branches.

PITTSBURGH & LAKE ERIE.—The Interstate Commerce Commission has ordered a hearing at Washington on July 30 on the application of this company for an order authorizing it to issue equipment trust certificates to the amount of $2,400,000 at 7 per cent; also, on the company's application for an order authorizing the issuance of two 90-day notes for $500,000 and $425,000, respectively, at 6 per cent; also for an order authorizing the issuance of 6 per cent promissory notes, one for one year, for $625,000, payable to the Western Transit Company, and six months' notes for an aggregate of $1,500,000 payable at the Union Trust Company of Pittsburgh.

Railway Officers

Operating

L. M. Rose, trainmaster of the Missouri & North Arkansas at Harrison, Ark., has resigned, effective July 16, and the position of trainmaster has been abolished.

Andrew J. Farrell, trainmaster of the Philadelphia & Reading at Tamaqua, Pa., has been appointed superintendent of the Shamokin division with the same headquarters, effective July 8.

W. B. Kirkland, trainmaster on the Stockton division of the Southern Pacific, with headquarters at Tracy, Cal., has been transferred to the Sacramento division, with headquarters at Sacramento. **J. J. Sullivan** has been appointed trainmaster of the Stockton division, succeeding Mr. Kirkland.

George D. Dager, who has been appointed superintendent of the Adirondack division of the New York Central with headquarters at Utica, N. Y., as noted in the *Railway Age* of June 18 (page 1958), served as trainmaster of the same division prior to this promotion. Mr. Dager was born at Little Falls, N. Y., on January 10, 1870. He received a public school education and began railroad work on April 8, 1884, as telegraph operator for the New York Central, to which road he has given his entire railroad service. In November, 1892, he was appointed freight agent and on July 13, 1897, was sent to Albany, N. Y., as train despatcher. He was promoted to chief train despatcher on August 7, 1900, and appointed trainmaster at Albany on October 1, 1906. He was transferred to Utica in March, 1911.

William G. Choate, whose promotion to general manager of the Gulf Coast Lines with headquarters at Houston, Texas, was announced in the *Railway Age* of June 18 (page 1958), was born on November 28, 1866, at Taunton, Mass. He was educated at Hobart College, graduating in the class of 1887. He entered railway service as a rodman in the engineering department of the Union Pacific in 1887. Two years later he was promoted to assistant engineer on the Colorado Division and then to roadmaster. In 1891 and 1892 he was in charge of standard gaging and grade improvement work on the Denver & Rio Grande. In the latter year he was appointed superintendent at Rio Grande Junction, Texas. In 1901 he was placed in charge of the construction of a line from El Paso, Tex., to Douglas, Ariz. He returned to Rio Grande Junction as division superintendent in 1905. Three years later he was appointed general manager of the Oklahoma Central for the bondholders' committee. He was appointed superintendent of the Louisiana division of the Gulf Coast lines in 1916, and in November, 1917, was promoted to assistant to the president. In March, 1918, he was also made general manager of the Houston Belt & Terminal, in addition to his duties as assistant to the president of the Gulf Coast Lines. During the period of federal control he served as assistant general manager in charge of operation. On return to private control he retained this position and he occupied it at the time of his recent promotion as above noted.

Traffic

G. G. Early has been appointed general agent on the Wabash, with headquarters at Philadelphia, Pa., effective July 16.

C. H. Atherton has been appointed chief of the traffic bureau of the Louisiana Railway & Navigation Co., with headquarters at Shreveport, La.

O. J. DeLamotte, formerly with the Red River & Gulf, has been appointed traffic manager of the Glenmora & Western succeeding **C. N. Nesom,** resigned.

G. F. Sherry, chief clerk in the traffic department of the Houston, Tex., Chamber of Commerce, has been appointed

traffic manager of the Jonesboro, Lake City & Eastern, with headquarters at Jonesboro, Ark.

J. E. Buckingham, general baggage, mail and express agent of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been appointed assistant general freight and passenger agent of the Colorado & Southern, with headquarters at Denver, Col., effective August 1. **L. H. Stebbins,** assistant general baggage, mail and express agent of the Burlington, with headquarters at Chicago, has been promoted to succeed Mr. Buckingham.

Henry F. Bell, who was appointed foreign freight traffic manager of the Erie, with headquarters at New York, as noted in the *Railway Age* of March 26 (page 1079), served as assistant to the assistant director, division of traffic of the Railroad Administration, in charge of export and import section, from January, 1919, until the termination of federal control. Mr. Bell was born at Islington, Eng., on December 7, 1876. He was educated in public schools and began railroad work on July 1, 1895, as messenger in the chief engineer's office of the Southern at Washington, D. C. In June, 1896, he was transferred to the traffic department and remained there as stenographer, until 1898, when he became secretary to the freight traffic manager. In 1903 he was transferred to the executive department, as secretary to the president, who was then **W. W. Finley.** He retained that position until the death of Mr. Finley, on November 25, 1913. On January 1, 1914, he was appointed commercial agent of the Southern at Havana, Cuba. On May 15, 1918, he was appointed assistant to the manager, inland traffic, War Industries Board. He served in that capacity until appointed to the position mentioned above, which he held at the time of his recent promotion.

H. F. Bell

Mechanical

R. W. Anderson, assistant superintendent of motive power on the Chicago, Milwaukee & St. Paul, lines east of the Missouri river, with headquarters at Milwaukee, Wis., has been promoted to superintendent of motive power of the lines east of the Missouri river, with the same headquarters, effective June 16, succeeding E. J. Brennan.

Charles I. Walker, whose promotion to master car repairer on the Southern Pacific, with headquarters at Los Angeles, Cal., was announced in the *Railway Age* of June 18 (page 1958), was born on December 3, 1875, at Hillsboro, Mo. Mr. Walker entered railway service as an apprentice car builder with the St. Louis, Iron Mountain & Southern on July 27, 1891, and during the next seven years served in several branches of this department. In June, 1898, he entered the service of the Mexican National, with headquarters at Laredo, Tex., as a car builder. In September, 1898, he went with the St. Charles Car Company at St. Charles, Mo., and in August, 1900, with the Pullman Company at Chicago, where he was later promoted to assistant foreman. In July, 1904, he returned to the Mexican National at Laredo, and on February 1, 1905, was promoted to master car builder on that system. He was appointed foreman in the passenger repair department of the Cincinnati, Hamilton & Dayton, with headquarters at Lima, O., in July, 1906. In October, 1907, he became a shop foreman on the Southern Pacific, and shortly thereafter was appointed draftsman. After a short service as inspector, he was transferred, in May, 1919, to the general freight car department at San Francisco, Cal., where he was located at the time of his recent promotion.

R. W. Anderson, assistant superintendent motive power of the Chicago, Milwaukee & St. Paul, Lines East, with headquarters at Milwaukee, Wis., has been appointed superintendent motive power, with the same headquarters. Mr. Anderson was born on May 6, 1877, in Madison County, Iowa. He began railroad work as a machinist's apprentice for the Des Moines Union in January, 1892. In January, 1897, he went to the Chicago, Rock Island & Pacific as machinist, and retained that position until May, 1903, when he was promoted to assistant roundhouse foreman. Some months later he became roundhouse foreman. He entered the employ of the Chicago, Milwaukee & St. Paul as machinist at Mitchell, S. D., in September, 1904, and in November, 1905, was appointed assistant roundhouse foreman at the same place. He was transferred as machinist to the Idaho division in September, 1907, and in June of the following year was promoted to mechanical foreman of the same division. From May, 1908, until August, 1911, he served as roundhouse foreman at Avery, Idaho. He was then transferred to Miles City, Mont., and while there was appointed district master mechanic in November, 1912. He retained that position until June, 1918, when he was promoted to assistant superintendent motive power, as mentioned above.

R. W. Anderson

Engineering, Maintenance of Way and Signaling

H. N. Rodenbaugh, who was principal assistant engineer, valuation department of the Southern Railway, prior to the government control, and regional engineer of the Southern and Pocahontas regions during federal control, has been appointed chief engineer of the Florida East Coast, with headquarters at St. Augustine, Fla., succeeding **E. Ben Carter,** who has resigned. Mr. Rodenbaugh was born at Norristown, Pa., on November 20, 1879, and was graduated from the University of Pennsylvania in 1901. He entered railway service in January, 1902, as a draftsman in the office of the chief engineer of the Norfolk & Western, leaving that company in July, 1903, to go with the Alan Wood, Iron & Steel Co., Conshohocken, Pa., as yard superintendent. In June, 1904, he returned to railway service as an assistant engineer in the office of the chief engineer maintenance of way and structures of the Southern, with headquarters at Washington, D. C. Leaving the Southern in October, 1905, he became assistant engineer of bridges and buildings of the Carolina, Clinchfield & Ohio at Bristol, Va. In June, 1906, he was appointed principal assistant engineer of the Virginia & Southwestern, leaving this position in January, 1908, to become structural engineer of the Philadelphia & Reading, with headquarters at Philadelphia, Pa. In June, 1909, he returned to the Southern as an assistant engineer of bridges, serving subsequently as an engineer in charge of terminal construction, supervising engineer, principal assistant to special engineer for valuations and principal assistant engineer, valuation department, until July, 1918, when he was appointed engineering assistant to the regional director of the Southern region of the Railroad Administration. In March, 1920, he was promoted to regional engineer of the Southern and Pocahontas region, serving in this capacity until his recent appointment as noted above.